Lucent Technologies
Bell Labs Innovations

DEFINITY®
Enterprise Communications Server
Release 6
Upgrades and Additions for R6r

555-230-121
Comcode 108136003
Issue 4
January 1998

Notice
Every effort was made to ensure that the information in this book was complete and accurate at the time of printing. However, information is subject to change.

Your Responsibility for Your System's Security
Toll fraud is the unauthorized use of your telecommunications system by an unauthorized party, for example, persons other than your company's employees, agents, subcontractors, or persons working on your company's behalf. Note that there may be a risk of toll fraud associated with your telecommunications system and, if toll fraud occurs, it can result in substantial additional charges for your telecommunications services.

You and your system manager are responsible for the security of your system, such as programming and configuring your equipment to prevent unauthorized use. The system manager is also responsible for reading all installation, instruction, and system administration documents provided with this product in order to fully understand the features that can introduce risk of toll fraud and the steps that can be taken to reduce that risk. Lucent Technologies does not warrant that this product is immune from or will prevent unauthorized use of common-carrier telecommunication services or facilities accessed through or connected to it. Lucent Technologies will not be responsible for any charges that result from such unauthorized use.

Lucent Technologies Fraud Intervention
If you *suspect that you are being victimized* by toll fraud and you need technical support or assistance, call Technical Service Center Toll Fraud Intervention Hotline at 1 800 643-2353.

Federal Communications Commission Statement
Part 15: Class A Statement. This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio-frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Part 68: Network Registration Number. This equipment is registered with the FCC in accordance with Part 68 of the FCC Rules. It is identified by FCC registration number AS593M-13283-MF-E. Refer to "Federal Communications Commission Statement" in "About This Book" for more information regarding Part 68.

Canadian Department of Communications (DOC)
Interference Information
This digital apparatus does not exceed the Class A limits for radio noise emissions set out in the radio interference regulations of the Canadian Department of Communications.

Le Présent Appareil Nomérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la class A préscrites dans le reglement sur le brouillage radioélectrique édicté par le ministére des Communications du Canada.

Trademarks
See the preface of this document.

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Issue 4, January 1998
For additional documents, refer to the section in "About This Document" entitled "Related Resources."

You can be placed on a standing order list for this and other documents you may need. Standing order will enable you to automatically receive updated versions of individual documents or document sets, billed to account information that you provide. For more information on standing orders, or to be put on a list to receive future issues of this document, contact the Lucent Technologies Publications Center.

European Union Declaration of Conformity
The "CE" mark affixed to the DEFINITY® equipment described in this book indicates that the equipment conforms to the following European Union (EU) Directives:

- Electromagnetic Compatibility (89/336/EEC)
- Low Voltage (73/23/EEC)
- Telecommunications Terminal Equipment (TTE) i-CTR3 BRI and i-CTR4 PRI

For more information on standards compliance, contact your local distributor.

Comments
To comment on this document, return the comment card at the front of the document.

Acknowledgment
This document was prepared by Product Documentation Development, Lucent Technologies, Denver, CO.

Contents

Contents

Contents

Contents

About This Book

This book is intended for use by trained installation technicians and provides procedures for upgrading existing systems to a DEFINITY® Enterprise Communications Server Release 6. This book is intended to cover software and hardware upgrades and additions to existing systems only.

Other hardware installation procedures are in *DEFINITY Enterprise Communications Server Release 6 Installation and Test for Multi-Carrier Cabinets*. To add adjuncts and peripheral devices, refer to *DEFINITY Enterprise Communications Server Release 6 Installation for Adjuncts and Peripherals.*

Offer Categories

Features are limited depending on the category purchased by the customer. Offer Category A allows access to all DEFINITY features. Offer Category B allows access to a subset of DEFINITY features. Contact your Lucent Technologies representative for more information.

Security Issues

To ensure the greatest security possible for customers, Lucent Technologies offers services that can reduce toll-fraud liabilities. Contact your Lucent Technologies representative for more security information.

Login security is an attribute of the DEFINITY ECS software. Existing passwords expire 24 hours after installation.

SoftLock Feature

Login security for the System-Paramters Customer-Options forms use the softlock interface for the “init” login only. SoftLock is automatically imposed during the upgrade.

Anti-Static Protection

CAUTION:
When handling circuit packs or any components of a DEFINITY System, always wear a wrist ground strap. Connect the strap to an approved ground such as the ground jack on the DEFINITY System.

Upgrade Paths

The upgrade paths described in this book assume the system being upgraded is at the level of at least a G3V4. To upgrade prior systems to this starting point, refer to *DEFINITY Communications System Generic 3r Upgrades and Additions*, 555-230-109.

Table 1 correlates each upgrade to an associated chapter number.

Table 1. Software and Hardware Upgrade Chapters

Description	Chapter
G3rV2, V3, or V4 to Release 6r with Memory Addition (hardware and software)	1
G3rV4 or Release 5r to Release 6r without Memory Addition (software only)	2
Release 5si or Release 5si + Memory to Release 6r EPN	3
Intel 386 or RISC Processor to Release 6r	4
Multi-Carrier G2 Universal Module to Release 6si EPN	5

If upgrading from a pre-Release 5vs to a DEFINITY ECS Release 6vs or Release 6si, refer to *DEFINITY Enterprise Communications Server Release 6 Upgrades and Additions for R6vs/si*.

The following table indicates the processes and their corresponding time allotment. Not all processes are required for every upgrade; the table shows maximum times and includes high and critical reliability processes.

Process	Minutes
Busyout multimedia interface circuit packs	2
Disable/enable TTI	2
Disable/enable scheduled maintenance	2
Disable/enable alarm origination to INADS	2
Save announcements (TN750/B Only)	40
Save translations	10
Backup disk	25-50
Clean tape drive and insert new tape	7
Test tape long	45
List configuration software long	5
Replace disk drives and circuit packs	10
Set tone, lock, power down, power up, and unlock active and standby SPE	30
Restore disk full (both)	30
Restore disk install (both)	12
Upgrade software	15
Configure tape	2
Set vector f	2
Reset standby 4	5
Status spe	10
Miscellaneous	5

Conventions Used in This Book

- Information you type is shown as: **save announcements**
- Information displayed on the screen is shown as: `login:`
- Keyboard keys are shown as: Enter
- Circuit pack codes (for example, TN772 or TN754B) are shown with the *minimum acceptable* alphabetic suffix (like the "B" in the code "TN754B").

  Generally, an alphabetic suffix higher than the 1 shown is also acceptable. However, not every *vintage* of either the minimum suffix or a higher suffix code is necessarily acceptable.

  NOTE:
  Refer to *Technical Monthly: Reference Guide for Circuit-Pack Vintages and Change Notices*, for current information about the usable vintages of specific circuit pack codes (including the suffix) in a Release 6 system.

The following conventions describe the systems referred to in this book.

- The word *system*, is a general term encompassing Release 6 and includes references to the DEFINITY Enterprise Communications Server.
- DEFINITY Systems in this book are called: G3V2, G3v3, G3V4, Release 5, Release 5si + memory, Release 5r, Release 6, Release 6si, and Release 6r.
- Information in this book is applicable for Release 5 through Release 6, unless otherwise specified.
- DEFINITY Enterprise Communications Server is abbreviated DEFINITY ECS.

Related Books

The following books are useful for system-related information:

- *DEFINITY Enterprise Communications Server Release 6 System Description Pocket Reference*, 555-230-211
- *DEFINITY Enterprise Communications Server Release 6 Maintenance for R6r,* 555-230-122
- *DEFINITY Enterprise Communications Server Release 6 Maintenance for R6vs/si,* 555-230-123
- *DEFINITY Enterprise Communications Server Release 5 Installation and Test for Single-Carrier Cabinets,* 555-230-894
- *DEFINITY Enterprise Communications Server Release 6 Installation and Test for Multi-Carrier Cabinets,* 555-230-112
- *DEFINITY Enterprise Communications Server Release 6 Administration and Feature Description,* 555-230-522
- *DEFINITY Enterprise Communications Server Release 6 Upgrades and Additions for R6vs/si,* 555-230-120
- *DEFINITY Enterprise Communications Server Release 6 Installation for Adjuncts and Peripherals,* 555-230-125
- *AT&T Network and Data Connectivity Reference*, 555-025-201
- *BCS Products Security Handbook*, 555-025-600
- *DEFINITY Wireless Business System Users Guide,* 555-232-105
- *DEFINITY Wireless Business System Installation and Test Guide,* 555-232-102
- *DEFINITY Wireless Business Systems System Interface*, 555-232-108
- *Switch Administration for DEFINITY AUDIX*, 585-300-509

How to Order Books

In addition to this book, other description, installation and test, maintenance, and administration books are available. A complete list of DEFINITY books can be found in the *Business Communications System Publications Catalog*, 555-000-010.

This book and any other DEFINITY books can be ordered directly from the Lucent Technologies Business Communications System Publications Fulfillment Center at 1-317-322-6791 or toll free at 1-800-457-1235.

How to Comment on This Book

Lucent Technologies welcomes your feedback. Please fill out the reader comment card found at the front of this manual and return it. Your comments are of great value and help improve our documentation.

If the reader comment card is missing, FAX your comments to 1-303-538-1741 or to your Lucent Technologies representative, and mention this book's name and number, *DEFINITY Enterprise Communication Server Release 6 Upgrades and Additions for R6r,* 555-230-121.

Where to Call for Technical Support

Refer to the table below for the telephone numbers for technical support.

	Telephone Number
Streamlined Implementation (for missing equipment)	1-800-772-5409
USA/Canada Technical Service Center	1-800-248-1234
Technical Service Center (INADS Database Administration)	1-800-248-1111
Asia/Pacific Regional Support Center	65-872-8686
Western Europe/South Africa/Middle East	441-252-391-889
Business Communications Europe	441-252-391-789
Eastern/Central Europe	361-270-5160
Latin/Central America & Caribbean - ITAC	1-303-538-4666
DEFINITY Helpline	1-800-225-7585
Lucent Technologies Toll Fraud Intervention	1-800-643-2353
Lucent Technologies Technical Service Center	1-800-242-2121
Lucent Technologies Corporate Security	1-800-822-9009

Trademarks

This document contains references to the following Lucent Technologies trademarked products:

- ACCUNET®
- AUDIX®
- Callmaster®
- CallVisor®
- CONVERSANT®
- DEFINITY®
- FORUM™
- MEGACOM®
- SYSTIMAX®
- TRANSTALK™

The following products are trademarked by their appropriate vendor:

- Audichron® is a registered trademark of Audichron Company
- LINX™ is a trademark of Illinois Tool Works, Inc.
- Music Mate® is a registered trademark of Harris Corporation
- PagePac® is a registered trademark of Harris Corporation, Dracon Division
- Shockwatch® is a registered trademark of Media Recovery, Incorporated
- Styrofoam® is a registered trademark of Styrofoam Corporation
- Tiltwatch® is a registered trademark of Media Recovery, Incorporated
- Zone Mate® is a registered trademark of Harris Corporation

Standards Compliance

The equipment presented in this book complies with the following (as appropriate):

- ITU-T (Formerly CCITT)
- ECMA
- ETSI
- IPNS
- DPNSS
- National ISDN-1
- National ISDN-2
- ISO-9000
- ANSI
- FCC Part 15 and Part 68
- EN55022
- EN50081
- EN50082
- CISPR22
- Australia AS3548 (AS/NZ3548)
- Australia AS3260
- IEC 825
- IEC 950
- UL 1459
- UL 1950
- CSA C222 Number 225
- TS001

LASER Product

The DEFINITY ECS may contain a Class 1 LASER device if single-mode fiber optic cable is connected to a remote Expansion Port Network (EPN). The LASER device operates within the following parameters:

Maximum Power Output: -5 dBm
Wavelength: 1310 nm
Mode Field Diameter: 8.8 microns
CLASS 1 LASER PRODUCT
IEC 825 1993

CAUTION:
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Contact your Lucent Technologies representative for more information.

Electromagnetic Compatibility Standards

This product complies with and conforms to the following:

- Limits and Methods of Measurements of Radio Interference Characteristics of Information Technology Equipment, EN55022 (CISPR22), 1993
- EN50082-1, European Generic Immunity Standard
- FCC Part 15
- Australia AS3548

  NOTE:
  The system conforms to Class A (industrial) equipment. Voice terminals meet Class B requirements.

- Electrostatic Discharge (ESD) IEC 1000-4-2
- Radiated radio frequency field IEC 1000-4-3
- Electrical Fast Transient IEC 1000-4-4
- Lightning effects IEC 1000-4-5
- Conducted radio frequency IEC 1000-4-6
- Mains frequency magnetic field IEC 1000-4-8
- Low frequency mains disturbance

The system conforms to the following:

- Electromagnetic compatibility General Immunity Standard, part 1; residential, commercial, light industry, EN50082-1, CENELEC, 1991
- Issue 1 (1984) and Issue 2 (1992), Electrostatic discharge immunity requirements (EN5504, Part 2) IEC 1000-4-2
- Radiated radio frequency field immunity requirements IEC 1000-4-3
- Electrical fast transient/burst immunity requirements IEC 1000-4-4

European Union Standards

Lucent Technologies Business Communications Systems declares that the DEFINITY equipment specified in this book bearing the “CE” mark conforms to the European Union Electromagnetic Compatibility Directives.

The “CE” (Conformité Europeénne) mark indicates conformance to the European Union Electromagnetic Compatibility Directive (89/336/EEC) Low Voltage Directive (73/23/EEC) and Telecommunication Terminal Equipment (TTE) Directive (91/263/EEC) and with i-CTR3 Basic Rate Interface (BRI) and i-CTR4 Primary Rate Interface (PRI) as applicable.

The “CE” mark is applied to the following Release 6 products:

- Global AC powered Multi-Carrier Cabinet (MCC)
- DC powered Multi-Carrier Cabinet (MCC) with 25 Hz ring generator
- AC powered Single-Carrier Cabinet (SCC) with 25 Hz ring generator
- AC powered Compact Single-Carrier Cabinet (CSCC) with 25 Hz ring generator
- Enhanced DC Power System
- Compact Modular Cabinet (CMC) with 25 Hz ring generator
- Compact Modular Cabinet (CMC) with 50 Hz ring generator for France

Federal Communications Commission Statement

Part 68: Statement

Part 68: Answer-Supervision Signaling. Allowing this equipment to be operated in a manner that does not provide proper answer-supervision signaling is in violation of Part 68 rules. This equipment returns answer-supervision signals to the public switched network when:

- Answered by the called station
- Answered by the attendant
- Routed to a recorded announcement that can be administered by the CPE user

This equipment returns answer-supervision signals on all DID calls forwarded back to the public switched telephone network. Permissible exceptions are:

- A call is unanswered
- A busy tone is received
- A reorder tone is received

Lucent Technologies attests that this registered equipment is capable of providing users access to interstate providers of operator services through the use of access codes. Modification of this equipment by call aggregators to block access dialing codes is a violation of the Telephone Operator Consumers Act of 1990.

This equipment complies with Part 68 of the FCC Rules. On the rear of this equipment is a label that contains, among other information, the FCC registration number and ringer equivalence number (REN) for this equipment. If requested, this information must be provided to the telephone company.

The REN is used to determine the quantity of devices which may be connected to the telephone line. Excessive RENs on the telephone line may result in devices not ringing in response to an incoming call. In most, but not all areas, the sum of RENs should not exceed 5.0. To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local telephone company.

NOTE:
REN is not required for some types of analog or digital facilities.

Means of Connection

Connection of this equipment to the telephone network is shown in the following table.

Manufacturer's Port Identifier	FIC Code	SOC/REN/ A.S. Code	Network Jacks
Off/On Premises Station	OL13C	9.0F	RJ2GX, RJ21X, RJ11C
DID Trunk	02RV2-T	0.0B	RJ2GX, RJ21X
CO Trunk	02GS2	0.3A	RJ21X
CO Trunk	02LS2	0.3A	RJ21X
Tie Trunk	TL31M	9.0F	RJ2GX
1.544 Digital Interface	04DU9-B,C	6.0P	RJ48C, RJ48M
1.544 Digital Interface	04DU9-BN,KN	6.0P	RJ48C, RJ48M
120A2 Channel Service Unit	04DU9-DN	6.0P	RJ48C

If the terminal equipment (DEFINITY® System) causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice is not practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service.

If trouble is experienced with this equipment, for repair or warranty information, please contact the Technical Service Center at 1-800-248-1234. If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

It is recommended that repairs be performed by Lucent Technologies certified technicians.

The equipment cannot be used on public coin phone service provided by the telephone company. Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information.

This equipment, if it uses a telephone receiver, is hearing aid compatible.

G3rV2, V3, or V4 to Release 6r with Memory Addition

1

This chapter provides the information necessary to perform a hardware and software upgrade from a DEFINITY G3rV2, V3, or V4 to a DEFINITY ECS Release 6r. Also refer to the following documents:

— *DEFINITY Enterprise Communications Server Release 6 Administration and Feature Description*

— *DEFINITY Enterprise Communications Server Release 6 Maintenance for R6r*

Installation Requirements

If the system does not contain 3 TN1650B Memory circuit packs and a TN1657 Disk Drive Vintage 4 (or later), use this chapter for the hardware and software upgrade to Release 6.

If the system contains 3 TN1650B Memory circuit packs and a TN1657 Disk Drive Vintage 4 (or later), skip to Chapter 2, ''G3rV4 or Release 5r to Release 6r without Memory Addition'' for a software-only upgrade to Release 6.

CAUTION:
Before inserting or removing a circuit pack or other equipment from a cabinet, wear an anti-static wrist strap and attach its plug or clip to the cabinet's ground jack.

Task Tables

Table 1-1 and Table 1-2 are the high-level tasks to perform the upgrades in this chapter.

Table 1-1. Tasks to Upgrade to Release 6r with Memory (Standard Reliability)

√	Task Description	Page
	Check Software Release Letter	1-6
	Disable Scheduled Maintenance	1-6
	Configure Tape Large (G3rV2 and G3rV3 Release 31.0 and Earlier Only)	1-7
	Save Translations to Original Tape	1-7
	Backup Disk	1-7
	Disable TTI	1-7
	Disable Alarm Origination to INADS	1-7
	List Configuration Software Long (Release 6 Tape)	1-8
	Save Translations to Release 6 Tape	1-8
	Save Announcements to Disk (TN750/B)	1-8
	Copy Announcements to Release 6 Tape (TN750/B)	1-8
	Change Disk Drive (If not TN1657 Vintage 4 or Later)	1-9
	Restore Disk Full	1-9
	Power Down PPN Cabinet	1-9
	Install Memory Circuit Pack	1-9
	Power Up the PPN Cabinet	1-10
	List Configuration Control	1-10
	Configure Tape 3-Mem (G3rV2 and G3rV3 Release 31.0 and Earlier Only)	1-10
	Enable TTI	1-11
	Enable Scheduled Maintenance	1-11
	Resolve Alarms	1-11
	Enable Customer Options and Alarm Origination	1-11
	Save Translations	1-11
	Back Up Disk	1-12
	Return Replaced Equipment	1-12

Table 1-2. Tasks to Upgrade to Release 6r with Memory (High or Critical Reliability)

√	Task Description	Page
	Check Software Release Letter	1-13
	Busyout Multimedia Interface Circuit Packs	1-13
	Disable Scheduled Maintenance	1-14
	Configure Tape spe-a Large (G3rV2 and G3rV3 Release 31.0 and Earlier Only)	1-14
	Configure Tape spe-b Large (G3rV2 and G3rV3 Release 31.0 and Earlier Only)	1-14
	Save Translations to Original Tape	1-14
	Backup Disk	1-14
	Disable TTI	1-15
	Disable Alarm Origination to INADS	1-15
	List Configuration Software Long (Release 6 Tape)	1-15
	Save Translations to Release 6 Tape (Both)	1-15
	Save Announcements to Disk (TN750/B)	1-15
	Copy Announcement to Release 6 Tape (Both)	1-16
	Change Disk Drives (If not TN1657 Vintage 4 or Later)	1-16
	Restore Disk Full (Both) (G3rV4 Only)	1-17
	Restore Disk Full (Both) (Release 5 or Later Only)	1-17
	Set Tone to Active SPE	1-17
	Lock to Active SPE	1-17
	Power Down Standby SPE	1-17
	Install Memory Circuit Pack	1-18
	Power Up Standby SPE	1-18
	Unlock Active SPE	1-18
	Set Tone to Upgraded SPE	1-18
	Lock to Upgraded SPE	1-19
	Power Down Standby SPE	1-19
	Install Memory Circuit Pack	1-19
	Power Up Standby SPE	1-19

Continued on next page

Table 1-2. Tasks to Upgrade to Release 6r with Memory (High or Critical Reliability) — *Continued*

Read This First

Service Interruption

This upgrade requires a non-call preserving service interruption of about 20 minutes for a standard reliability system, and about 15 minutes for high or critical reliability system. Coordinate this service interruption with the customer and the local account team.

Software Compatibility and Translation Errors

Before starting the upgrade, always check the *Software Release Letter* that accompanies the system tape. Translation corruption will occur if incompatible software is loaded.

After loading the new software, check for translation errors. To do this, logoff and then log back in. Check for translation errors ("Translation Corruption Detected" message) before proceeding with the upgrade.

If errors are detected, refer to ''No Translations After Upgrade'' in Appendix B, ''Troubleshooting Upgrade Problems''. Do not continue with the upgrade until the errors are corrected.

Call Management System (CMS)

The CMS link is dropped and restarted during the upgrade. This causes CMS data to be lost. This data loss can be minimized if the upgrade is performed just after the last CMS measurement interval. All measurement data is lost during the upgrade (including BCMS). Print the reports before the upgrade begins.

CMS could abort the processing of a call if a measured trunk that was part of the conference dropped off the call before the end of the call. Customers experiencing this symptom and who are running R3V4 CMS should update to r3v4ao.e or higher.

Usable Circuit Packs

Every circuit pack used in the Release 6 system must conform to the minimum usable vintage requirements for that system. At a presale site inspection, the QPPCN process checks the vintages of existing circuit packs to be reused in the Release 6 system. Replace all circuit packs with unusable vintages.

Refer to *Technical Quarterly*, *Reference Guide for Circuit-Pack Vintages, Change Notices,* and to the *Software Release Letter*, for information about usable circuit pack vintages. For non-United States circuit packs, refer to the ITAC's Tech Alert from your regional distributor.

Standard Reliability System

The following installation instructions are for Release 32.0 or later. The Release 31.0 and earlier installation instructions are identical to Release 32.0 and later instructions except where noted as “Release 31.0 and Earlier Only.” If a Release 32.0 and later system is installed, do not perform the Release 31.0 and Earlier Only steps.

Required Hardware

Table 1-3 lists the equipment needed for the standard reliability Release 6 upgrade.

Table 1-3. Required Hardware for Standard Reliability

Equipment	Description	Quantity
106495120	TN1650B Memory circuit pack	1
105533780	Vintage 4 (or later) TN1657 Disk Drive circuit pack	1 (may already have)
J58890TF L9	Release 6 Tape	1[1]

1. For a maintenance update, acquired from the Technical Service Center. For an upgrade, shipped from the factory.

Check Software Release Letter

1. Check the *Software Release Letter* that accompanies the Release 6 tape. This letter contains the recommended upgrade procedures. Always use the *Software Release Letter* when upgrading a system.
2. If the letter is not included with the Release 6 software tape, perform the following procedures.

Disable Scheduled Maintenance

1. Enter **change system-parameters maintenance** and press Enter.
2. Disable scheduled daily maintenance so it does not interfere with the upgrade.

   NOTE:
   If scheduled maintenance has begun, set the `Stop Time` field to 1 minute after the current time. If scheduled maintenance has not yet begun, change the `Start Time` field to a time after the upgrade will be finished.

Configure Tape Large (G3rV2 and G3rV3 Release 31.0 and Earlier Only)

1. Enter **configure tape large** and press Enter. This instructs the system to reconfigure the tape for 2 TN1650B Memory circuit packs. This command takes about 1 minute to complete.

   NOTE:
   Do not issue the list configuration software long command before reconfiguring the tape.

Save Translations to Original Tape

1. Enter **save translation tape** and press Enter. This instructs the system to write all translation information from memory to the tape. This takes about 5 minutes.

Backup Disk

1. Enter **backup disk** to write all information from the disk to the tape. This takes 30 to 40 minutes.

Disable TTI

1. Enter **change system-parameters features** and press Enter. Use Page 2 of the form to disable Terminal Translation Initialization (TTI) by changing the value to **n**.

Disable Alarm Origination to INADS

1. Enter **change system-parameters maintenance** and press Enter.
2. Enter **neither** in the `Alarm Origination to OSS Numbers` field and press Enter.
3. For some releases of software, disable *Cleared Alarm Notification* and *Restart Notification* before submitting the form.

   CAUTION:
   If Alarm Origination is not disabled, the system may generate alarms, resulting in unnecessary trouble tickets.

List Configuration Software Long (Release 6 Tape)

1. Clean the tape drive with the tape drive cleaning kit.
2. Insert the new Release 6 tape.
3. Enter **list configure software long** and press Enter to verify the tape contains the required Release 6 software. This takes about 2 minutes.

Save Translations to Release 6 Tape

1. Enter **save translation tape** and press Enter. This instructs the system to write all translation information from memory to the tape. This takes about 10 minutes.

Save Announcements to Disk (TN750/B)

1. If the PPN contains a TN750/B Announcement circuit pack, enter **display announcements** and press Enter.
2. If administered recorded announcements are listed, enter **save announcements** and press Enter. This takes about 30 minutes.

   NOTE:
   The TN750C Announcement circuit pack stores announcements in non-volatile memory; saving the announcements is not necessary.

Copy Announcements to Release 6 Tape (TN750/B)

1. If the PPN contains a TN750/B Announcement circuit pack, enter **display announcements** and press Enter.
2. If administered recorded announcements are listed, enter **list configuration software-version** and press Enter. Check Page 2 of the form to see when the announcements were last saved. To save the current announcements, enter **copy announce tape** and press Enter.

   NOTE:
   The TN750C Announcement circuit pack stores announcements in non-volatile memory; saving the announcements is optional.

Change Disk Drive (If not TN1657 Vintage 4 or Later)

1. Enter **list configuration control** to check the vintage of the disk drive. If the drive is *not* vintage 4 or later, proceed as follows. If the drive *is* vintage 4 or later, skip to "Restore Disk Full".
2. Enter **busyout host-adapter** <**cabinet**> <**carrier**> and press Enter to prevent other applications from accessing the disk or tape.
3. Replace the existing TN1657 Disk Drive circuit pack in the control carrier with a TN1657 Vintage 4 or later.
4. Enter **release host-adapter** <**cabinet**> <**carrier**> and press Enter to release the disk from the maintenance-busyout condition and to put it back into service.
5. Enter **reset host-adapter** and press Enter to allow the disk to spin up.
6. Enter **status spe** and press Enter to verify the disk is in service.

NOTE:
If the disk fails to return to service, repeat Steps 1, 3, 4, and 5.

Restore Disk Full

1. Enter **restore disk full** and press Enter. This instructs the system to copy the entire tape to disk and takes about 30 minutes to complete. Release 6 system software with translations and announcements are now resident on the disk.

NOTE:
Until this command finishes, the system provides no user feedback on the management terminal. Do not press Enter while the command executes. Doing so causes the terminal screen to clear as the command finishes, erasing any success/failure messages the system may provide.

Power Down PPN Cabinet

1. When the `login:` prompt appears, power down the PPN cabinet. The power switch is located at the front of the cabinet, at the bottom (behind the cover panel)

Install Memory Circuit Pack

1. Remove the circuit pack blank from the MEMORY 3 slot in the control carrier.
2. Install the new TN1650B Memory circuit pack into the MEMORY 3 slot.

Power Up the PPN Cabinet

1. Power up the PPN cabinet by setting the power switch to the on position.
2. Verify the SPE is up and cycling by watching the yellow LED on the UN331B Processor circuit pack flash with a regular cycle. Also, verify the red LED on the new TN1650B goes out and stays out.
3. Release 6 software is now running on the SPE. After 15 minutes, if the yellow LED is not flashing *or* if the red LED has not gone out, execute the SPE-down interface tests referring to *DEFINITY Enterprise Communications Server Release 6 Maintenance for R6r*.

List Configuration Control

1. Login as **craft** at the `login:` prompt.
2. Check for the `Translation Corruption Detected` message before proceeding with the upgrade. If corruption is detected, refer to ''No Translations After Upgrade'' in Appendix B, ''Troubleshooting Upgrade Problems'' to correct the problem.

   CAUTION:
   Do not continue with the upgrade until the translations errors are corrected.

3. Enter **list configuration control** and press Enter to verify the system recognizes the third TN1650B Memory circuit pack.
4. Enter **set time** and press Enter. Set the system time and date.

Configure Tape 3-Mem (G3rV2 and G3rV3 Release 31.0 and Earlier Only)

1. Enter **configure tape 3-mem** and press Enter. This configures the tape for a third TN1650B Memory circuit pack. This takes about 1 minute to finish.
2. Enter **restore disk full** and press Enter. This copies the entire tape to disk. This takes about 30 minutes to execute.

   NOTE:
   The system provides no user feedback on the terminal. Do not press Enter while the command executes. Doing so causes the terminal screen to clear as the command finishes, erasing any success/failure messages the system provides.

3. Enter **list configuration software-versions** and press Enter. Verify the entry *3 mem* resides in the *file system* field on Page 2 of the form.

Enable TTI

1. Enter **change system-parameters features** and press Enter. Use this form to change the TTI field back to its previous value before the upgrade.

Enable Scheduled Maintenance

1. Enter **change system-parameters maintenance** and press Enter. Use this form to enable scheduled daily maintenance.

Resolve Alarms

1. Examine the alarm log. Resolve any alarms using *DEFINITY Enterprise Communications Server Release 6 Maintenance for R6r*.

Enable Customer Options and Alarm Origination

1. Get the DOSS order number of the upgrade and call the regional CSA to request an "init" login. The CSA assigns the customer options.
2. Enter **change system-parameters customer-options** and press Enter.
3. Use these forms to verify the customer options are properly set.

   NOTE:
   If the customer was using Supplementary Services Protocol "b" or "d" on an ISDN-PRI trunk group before the upgrade, set the `Basic Call Setup` field to **y**.

4. Set the `Offer Category` field to **A**.
5. Set the `Activate Offer` field to **y** and press Enter.
6. Be sure the system is part of the existing INADS database by calling the INADS Database Administrator at the Technical Service Center (TSC). Verify that INADS can dial into the system and that the system can dial out to INADS.

   As part of the system registration process, the INADS Database Administrator enables Alarm Origination and customer options.
7. Logoff and log back in as **craft**.

Save Translations

1. Enter **save translation** to get upgraded translations onto disk. This takes about 10 minutes.

Back Up Disk

1. Enter **backup disk** and press Enter to backup all changed files. This takes about 30 minutes.
2. Enter **test stored-data long** and press Enter. This instructs the system to verify the consistency of the MSS files (on the disk and tape).

Return Replaced Equipment

1. Return replaced equipment to Lucent Technologies according to the requirements outlined in:

   BCS/Material Logistics, MSL/Attended Stocking Locations

   Methods and Procedures for Basic Material Returns

High or Critical Reliability System

The following instructions are for Release 32.0 or later. The Release 31.0 and earlier installation instructions are identical to Release 32.0 and later instructions except where noted as “Release 31.0 and Earlier Only.” If a Release 32.0 and later system is installed, do not perform the Release 31.0 and Earlier Only steps.

Required Hardware

Table 1-4 lists the equipment needed for the Release 6 upgrade.

Table 1-4. Required Hardware for High or Critical Reliability

Equipment	Description	Quantity
106495120	TN1650B Memory circuit pack	2
105533780	Vintage 4 (or later) TN1657 Disk Drive circuit pack	2 (may already have)
J58890TF L9	DEFINITY ECS Release 6 Tape	2[1]

1. For a maintenance update, acquire from the Technical Service Center. For an upgrade, ships from the factory.

Check Software Release Letter

1. Check the *Software Release Letter* that accompanies the Release 6 tape(s). This letter contains the recommended upgrade procedures. Always use the *Software Release Letter* when upgrading a system.
2. If the letter is not included with the Release 6 software tape(s), perform the following procedures.

Busyout Multimedia Interface Circuit Packs

Multimedia-to-voice station calls are *not* preserved on an upgrade. Failure to busy-out the TN787 Multimedia Interface circuit packs will result in unusable TN787 and TN788 Multimedia Voice Conditioner ports.

1. Enter **change system-parameters customer-options**. If the MMCH option is set to **y**, continue to step 2. If not, skip to ‘‘Disable Scheduled Maintenance’’. Do not change the setting.
2. Enter **list configuration all**. Locate all of the TN787 Multimedia Interface circuit packs.
3. Enter **busyout board** <**location**> for each TN787. This prevents any further multimedia-to-voice connections and drops all active connections.

Disable Scheduled Maintenance

1. Enter **change system-parameters maintenance** and press Enter. Disable scheduled daily maintenance so it does not interfere with the upgrade.

   NOTE:
   If scheduled maintenance has begun, set the `Stop Time` field to 1 minute after the current time. If scheduled maintenance has not yet begun, change the `Start Time` field to a time after the upgrade will be finished.

Configure Tape spe-a Large (G3rV2 and G3rV3 Release 31.0 and Earlier Only)

1. Enter **configure tape spe-a large** and press Enter. This instructs the system to reconfigure the tape in control carrier “A” for 2 TN1650B Memory circuit packs. This command takes about 1 minute to complete.

   NOTE:
   Do not issue the list configuration software long command before reconfiguring the tape.

Configure Tape spe-b Large (G3rV2 and G3rV3 Release 31.0 and Earlier Only)

1. Enter **configure tape spe-b large** and press Enter. This instructs the system to reconfigure the tape in control carrier “B” for 2 TN1650B Memory circuit packs. This command takes about 1 minute to complete.

   NOTE:
   Do not issue the list configuration software long command before reconfiguring the tape.

Save Translations to Original Tape

1. Enter **save translation tape** and press Enter. This instructs the system to write all translation information from memory to the tape and takes about 5 minutes.

Backup Disk

1. Enter **backup disk** to write all information from the disk to the tape. This takes 30 to 40 minutes.

Disable TTI

1. Enter **change system-parameters features** and press Enter. On page 2, change the Terminal Translation Initialization (TTI) feature to **n**.

Disable Alarm Origination to INADS

1. Enter **change system-parameters maintenance** and press Enter.
2. Enter **neither** in the `Alarm Origination to OSS Numbers` field and press Enter.
3. For some releases of software, disable `Cleared Alarm Notification` and `Restart Notification` before submitting the form.

CAUTION:
If Alarm Origination is not disabled, the system may generate alarms, resulting in unnecessary trouble tickets.

List Configuration Software Long (Release 6 Tape)

1. Clean the tape drives with the tape drive cleaning kit.
2. Insert the new Release 6 tape.
3. Enter **list configure software long** and press Enter to verify the tape contains the required Release 6 software. This takes about 2 minutes.
4. Make note of the entire alphanumeric string of the software version. This information is used later.

Save Translations to Release 6 Tape (Both)

1. Enter **save translation tape both** and press Enter. This instructs the system to write all translation information from memory to the tape. This takes about 10 minutes.

Save Announcements to Disk (TN750/B)

1. If the PPN contains a TN750/B Announcement circuit pack, enter **display announcements** and press Enter.
2. If administered recorded announcements are listed, enter **save announcements** and press Enter. This takes about 30 minutes.

NOTE:
The TN750C Announcement circuit pack stores announcements in non-volatile memory; saving the announcements is optional.

Copy Announcement to Release 6 Tape (Both)

1. If the PPN contains a TN750/B Announcement circuit pack, enter **display announcements** and press Enter.
2. If recorded announcements are listed, enter **copy announce spe-a tape** and press Enter, and **copy announce spe-b tape** and press Enter.

NOTE:
The TN750C Announcement circuit pack stores announcements in non-volatile memory; saving the announcements is optional.

Change Disk Drives (If not TN1657 Vintage 4 or Later)

CAUTION:
Replace and restore the disk drive, 1 at a time, on the standby SPE only. Never replace the active and standby disk drives at the same time. If the system crashes during the change out, there will be no boot image for the system to boot from.

1. Enter **list configuration control** to check the vintage of the disk drive. If the drive is *not* vintage 4 or later, proceed as follows. If the drive *is* vintage 4 or later, skip to the next appropriate section.
2. Enter **busyout host-adapter** [**a** | **b**] for the standby carrier and press Enter to prevent other applications from accessing the disk or tape.
3. Replace the existing TN1657 Disk Drive circuit pack in the control carrier with a TN1657 Vintage 4 or later.
4. Enter **release host-adapter spe** [**a** | **b**] for the standby carrier and press Enter to release the disk from the maintenance-busyout condition and put it back into service.
5. Enter **reset host-adapter spe** [**a** | **b**] for the standby carrier and press Enter to allow the disk to “spin up.”
6. Enter **status spe** and press Enter to verify the disk is now in service.

NOTE:
If the disk fails to return to service, repeat Steps 1, 3, 4, and 5.

Restore Disk Full (Both) (G3rV4 Only)

1. Enter **restore disk full both** and press Enter. For both SPEs, this instructs the system to copy the entire tape to disk and takes about 30 minutes.

   NOTE:
   Until this command finishes, the system provides no feedback on the terminal screen. Do not press Enter while the command executes. Doing so causes the terminal screen to clear as the command finishes; erasing any success/ failure messages.

Restore Disk Full (Both) (Release 5 or Later Only)

1. Enter **restore disk full both** and press Enter. For both SPEs, this instructs the system to copy the entire tape to disk and takes about 30 minutes to complete.

   NOTE:
   Until this command finishes, the system provides no user feedback on the management terminal screen. Do not press Enter while the command executes. Doing so causes the terminal screen to clear as the command finishes; erasing any success/ failure messages the system may provide.

Set Tone to Active SPE

1. Enter **status port-network 1** and press Enter.
2. Enter **set tone spe-a** or **spe-b** if needed.

Lock to Active SPE

1. Enter **status spe** and press Enter to determine which SPE is active and which is standby.
2. Lock the active SPE on-line 1 SPE-SELECT switch at a time. To do this, set the *active* SPE to active, then set the *standby* SPE to standby.

Power Down Standby SPE

1. Power down the standby control carrier by disconnecting the power cords (first from the left and then the right) from the power supplies on both sides of the carrier.

Install Memory Circuit Pack

1. Remove the circuit pack blank from the “MEMORY 3” slot of the standby control carrier.
2. Install a new TN1650B Memory circuit pack into the “MEMORY 3” slot.

Power Up Standby SPE

1. Power up the standby control carrier by replacing the power cords (first to the right power supply and then the left).
2. Verify the standby SPE is up and cycling by watching the yellow LED on the UN331B Processor circuit pack flash with a regular cycle. Also, verify the red LED on the new TN1650 goes out and stays out.

   Release 6 software is now running on the standby SPE. After 15 minutes, if the yellow LED is not flashing *or* if the red LED has not gone out, execute the SPE-down interface tests referring to *DEFINITY Enterprise Communications Server Release 6 Maintenance for R6r*.

Unlock Active SPE

1. Login as **craft**.
2. Check for the `Translation Corruption Detected` message before proceeding with the upgrade. If corruption is detected, refer to ‘‘No Translations After Upgrade’’ in Appendix B, ‘‘Troubleshooting Upgrade Problems’’ to correct the problem.

   CAUTION:
   Do not continue with the upgrade until the translations errors are corrected.

3. Unlock both SPEs from their current “active/standby” state 1 SPE-SELECT switch at a time (first in the *standby* control carrier, then in the *active* control carrier). Set the switch to the AUTO position.

Set Tone to Upgraded SPE

1. Enter **status port-network 1** and press Enter.
2. Enter **set tone spe-a** or **spe-b** if needed.

Lock to Upgraded SPE

1. Enter **status spe** and press Enter to determine which SPE is active and which is standby.
2. Lock the standby SPE on-line 1 SPE-SELECT switch at a time. To do this, set the *active* SPE to standby, then set the *standby* SPE to active.

Power Down Standby SPE

1. Power down the standby control carrier by disconnecting the power cords (first from the left and then the right) from the power supplies on both sides of the carrier.

Install Memory Circuit Pack

1. Remove the circuit pack blank from the “MEMORY 3” slot of the standby control carrier.
2. Install a new TN1650B Memory circuit pack into the “MEMORY 3” slot.

Power Up Standby SPE

1. Power up the standby control carrier by replacing the power cords (first to the right power supply and then the left).
2. Verify the standby SPE is up and cycling by watching the yellow LED on the UN331B Processor circuit pack flash with a regular cycle.
3. Verify the red LED on the new TN1650 goes out. Release 6 software is now running on the standby SPE. After 15 minutes, if the yellow LED is not flashing *or* if the red LED has not gone out, execute the SPE-down interface tests referring to *DEFINITY Enterprise Communications Server Release 6 Maintenance for R6r*.

Unlock Active SPE

1. Login as **craft**.
2. Check for the `Translation Corruption Detected` message before proceeding with the upgrade. If corruption is detected, refer to ''No Translations After Upgrade'' in Appendix B, ''Troubleshooting Upgrade Problems'' to correct the problem.

   CAUTION:
   Do not continue with the upgrade until the translation corruption is corrected.

3. Unlock both SPEs from their current "active/standby" state 1 SPE-SELECT switch at a time (first in the *standby* control carrier, then in the *active* control carrier). Set the switch to the AUTO position.
4. Enter **status spe** and press Enter. Both SPEs must be in a fully functional state.

List Configuration Control

1. Enter **list configuration control** and press Enter to verify the system recognizes the third TN1650B Memory circuit pack.
2. Enter **set time** and press Enter. Set the system time and date.

Configure Tape spe-a 3-Mem (G3rV2 and G3rV3 Release 31.0 and Earlier Only)

1. Enter **configure tape spe-a 3-mem** and press Enter. This instructs the system to reconfigure the tape for a third TN1650B Memory circuit pack. This commands takes about 1 minute to complete.

Configure Tape spe-b 3-Mem (G3rV2 and G3rV3 Release 31.0 and Earlier Only)

1. Enter **configure tape spe-b 3-mem** and press Enter for carrier B. This instructs the system to reconfigure the tape for a third TN1650B Memory circuit pack. This commands takes about 1 minute to complete.
2. Enter **list configuration software-versions** and press Enter. Verify the entry *3 mem* resides in the *file system* field on Page 2 of the form.

Restore Disk Full (Both) (G3rV2 and G3rV3 Release 31.0 and Earlier Only)

1. Enter **restore disk full both** and press Enter. This copies the entire tape to disk and takes about 30 minutes to execute. Release 6 system software with translations and announcements is now resident on the disk.

   NOTE:
   Until this command finishes, the system provides no user feedback on the management terminal. Do not press Enter when the command begins executing. Doing so causes the terminal screen to clear as the command finishes, erasing any success/failure messages the system may provide.

2. Enter **test stored-data long** and press Enter to verify the files on every storage device are consistent.

Set Vector f SPE-Maint

1. Enter **set vector f spe-maint** and press Enter to set the core dump vector to perform a core dump on any system restart.

Enable TTI

1. Enter **change system-parameters features** and press Enter. Use this form to change the TTI field back to its previous value before the upgrade.

Enable Scheduled Maintenance

1. Enter **change system-parameters maintenance** and press Enter. Use this form to enable scheduled daily maintenance.

Resolve Alarms

1. Examine the alarm log. Resolve any alarms that may exist using *DEFINITY Enterprise Communications Server Release 6 Maintenance for R6r*.

Enable Customer Options and Alarm Origination

1. Get the DOSS order number of the upgrade and call the regional CSA to request an “init” login. The CSA assigns the Release 6 option, which automatically sets the 24-hour password aging for the customer logins.
2. Enter **change system-parameters customer-options** and press Enter.
3. Use these forms to verify the customer options are properly set.

   NOTE:
   If the customer was using Supplementary Services Protocol “b” or “d” on an ISDN-PRI trunk group before the upgrade, set the `Basic Call Setup` field to **y**.

4. Set the `Offer Category` field to **A**.
5. Set the `Activate Offer` field to **y** and press Enter.
6. Be sure the system is part of the existing INADS database by calling the INADS Database Administrator at the Technical Service Center (TSC). Verify that INADS can dial into the system and that the system can dial out to INADS.

   As part of the system registration process, the INADS Database Administrator enables Alarm Origination and customer options.
7. Logoff and log back in as **craft**.

Save Translations

1. Enter **save translation** and press Enter to get upgraded translations onto disk. This takes about 10 minutes.

Back Up Disk

1. Enter **backup disk** and press Enter to backup all changed files. This takes about 30 minutes.
2. Enter **test stored-data long** and press Enter. This instructs the system to verify the consistency of the MSS files (on the disk and tape).

Return Replaced Equipment

1. Return replaced equipment to Lucent Technologies according to the requirements outlined in:

   BCS/Material Logistics, MSL/Attended Stocking Locations

   Methods and Procedures for Basic Material Returns

2 G3rV4 or Release 5r to Release 6r without Memory Addition

This chapter provides the information necessary to perform a software-only upgrade from a DEFINITY G3rV4 or a Release 5r to a Release 6r System. There are many configurations of DEFINITY G3rV4 and Release 5r in the field. Each system can have a unique configuration. This book addresses the most common configurations. Also refer to the following books:

— *DEFINITY Enterprise Communications Server Release 6 Administration and Feature Description*

— *DEFINITY Enterprise Communications Server Release 6 Maintenance for R6r*

NOTE:
This upgrade procedure assumes each control carrier contains a TN1657 Disk Drive (Vintage 4 or higher) and a third TN1650B Memory circuit packs. If these items are not present in the system, use the upgrade procedures in Chapter 1, ''G3rV2, V3, or V4 to Release 6r with Memory Addition'' instead of the instructions in this chapter.

Task Tables

Table 2-1 and Table 2-2 provide the high-level tasks to perform the upgrades in this chapter.

Table 2-1. Tasks to Upgrade to Release 6r (Standard Reliability)

√	Task Description	Page
	Check Software Release Letter	2-6
	Disable Scheduled Maintenance	2-6
	Save Translations to Original Tape	2-6
	Backup Disk	2-6
	Disable TTI	2-6
	Disable Alarm Origination to INADS	2-7
	List Configuration Software Long (Release 6 Tape)	2-7
	Save Translations to Release 6 Tape	2-7
	Save Announcements to Disk (TN750/B)	2-7
	Copy Announcement to Release 6 Tape (TN750/B)	2-8
	Restore Disk Full	2-8
	Upgrade Software	2-8
	Enable TTI	2-9
	Enable Scheduled Maintenance	2-9
	Resolve Alarms	2-9
	Enable Customer Options and Alarm Origination	2-9
	Save Translations	2-9
	Back Up Disk	2-10
	Return Replaced Equipment	2-10

Table 2-2. Tasks to Upgrade to Release 6r (High or Critical Reliability)

√	Task Description	Page
	Check Software Release Letter	2-11
	Busyout Multimedia Interface Circuit Packs	2-11
	Disable Scheduled Maintenance	2-11
	Save Translations to Original Tape (Both)	2-12
	Backup Disk	2-12
	Disable TTI	2-12
	Disable Alarm Origination to INADS	2-12
	List Configuration Software Long	2-12
	Save Translations to Release 6 Tape (Both)	2-12
	Save Announcements to Disk (TN750/B)	2-13
	Copy Announcement to Release 6 Tape (Both)	2-13
	Restore Disk Full (Both) (G3rV4 Only))	2-13
	Upgrade Software (G3rV4 Only)	2-14
	Restore Disk Install (Both) (Release 5r Only)	2-14
	Upgrade Software (Release 5r Only)	2-15
	Reset SPE-Standby 4	2-15
	Set Vector f SPE-Maint	2-15
	Enable TTI	2-15
	Enable Scheduled Maintenance	2-15
	Resolve Alarms	2-15
	Enable Customer Options and Alarm Origination	2-16
	Save Translations	2-16
	Back Up Translations/Announcements to Spare Release 6 Tape	2-17
	Return Replaced Equipment	2-17

Read This First

Service Interruption

The upgrade process requires a non-call preserving service interruption which occurs during a reboot with the Release 6 tapes. This service interruption of about 15 to 20 minutes for a simplex system must be closely coordinated with the customer and the local account team.

Call Management System (CMS)

The CMS link is dropped and restarted during the upgrade. This causes CMS data to be lost. This data loss can be minimized if the upgrade is performed just after the last CMS measurement interval.

All measurement data is lost during the upgrade (including BCMS). If needed, the reports may be printed before the upgrade begins.

CMS could abort the processing of a call if a measured trunk that was part of the conference dropped off the call before the end of the call. Customers experiencing this symptom and who are running R3V4 CMS should update to r3v4ao.e or higher.

Software Compatibility and Translation Errors

Before starting the upgrade, always check the *Software Release Letter* that accompanies the system tape. Translation corruption will occur if incompatible software is loaded.

After loading the new software, check for translation errors. To do this, logoff and then log back in. Check for translation errors (“Translation Corruption Detected” message) before proceeding with the upgrade.

If errors are detected, refer to ‘‘No Translations After Upgrade’’ in Appendix B, ‘‘Troubleshooting Upgrade Problems’’. Do not continue with the upgrade until the errors are corrected.

Changes to Run-Tape Compatible Update or Upgrade Procedures

The specific steps for a run-tape compatible update or upgrade can change as new tapes are issued. For the most current information, refer to the Quality Protection Plan Change Notice (QPPCN) Update Supplement provided with the new Release 6 tape.

Usable Circuit Packs

Every circuit pack used in the Release 6 system must conform to the minimum usable vintage requirements for that system. At a presale site inspection, the QPPCN process checks the vintages of existing circuit packs to be reused in the Release 6 system. Circuit packs with unusable vintages must be replaced.

Refer to *Technical Quarterly*, *Reference Guide for Circuit Pack Vintages, Change Notices,* and to the *Software Release Letter*, for information about usable circuit pack vintages. For information about usable vintages of non-United States circuit packs, refer to the ITAC's Tech Alert from your regional distributor.

Software Upgrade

Release 6 software and translations are saved to tape. Although the translations automatically update to Release 6, several features require special attention because of form changes or potential naming conflicts in the process.

Between customer confirmation and the actual update or upgrade, the Software Specialist and Associate should check these forms to ensure the translations are appropriate for the customer's needs. After rebooting the system, enter these translations either locally by the Software Associate or remotely at the FSAC (with possible assistance from the upgrade technician). For information to make the required changes, refer to:

- *DEFINITY Enterprise Communications Server Release 6.2 Transition Reference*
- *DEFINITY Enterprise Communications Server Release 6 Administration and Feature Description*

Required Hardware

The J58890TF L9 Tape is needed for the Release 6 upgrade. For a maintenance update, the tape is acquired from the Technical Service Center. For an upgrade, the tape ships from the factory.

Standard Reliability System

The following installation instructions are for Release 32.0. The Release 31.0 and earlier installation instructions are identical to Release 32.0 and later instructions except where noted as “Release 31.0 and Earlier Only.” If a Release 32.0 and later system is installed, do not perform the Release 31.0 or Earlier Only steps.

Check Software Release Letter

1. Check the *Software Release Letter* that accompanies the Release 6 tape. This letter contains the recommended upgrade procedures. Always use the *Software Release Letter* when upgrading a system.
2. If the letter is not included with the Release 6 tape, perform the following procedures.

Disable Scheduled Maintenance

1. Enter **change system-parameters maintenance** and press Enter. Use this form to prevent scheduled daily maintenance from interfering with the update or upgrade.

   NOTE:
   If scheduled maintenance has begun, set the value of the `Stop Time` field to 1 minute after the current time. If scheduled maintenance has not yet begun, change the value of the `Start Time` field to a time after the upgrade will be finished.

Save Translations to Original Tape

1. Enter **save translation tape** and press Enter. This instructs the system to write all translation information from memory to the tape and takes about 5 minutes.

Backup Disk

1. Enter **backup disk** to write all information from the disk to the tape. This takes 30 to 40 minutes.

Disable TTI

1. Enter **change system-parameters features** and press Enter. Use Page 2 of this form to prevent activation of the Terminal Translation Initialization (TTI) feature by changing the value to **n**.

Disable Alarm Origination to INADS

1. Enter **change system-parameters maintenance** and press Enter.
2. Enter **neither** in the `Alarm Origination to OSS Numbers` field and press Enter.
3. For some releases of software, disable `Cleared Alarm Notification` and `Restart Notification` before submitting the form.

CAUTION:
If Alarm Origination is not disabled, the system may generate alarms, resulting in unnecessary trouble tickets.

List Configuration Software Long (Release 6 Tape)

1. Clean the tape drive with the tape drive cleaning kit.
2. Insert the new Release 6 tape.
3. Enter **list configure software long** and press Enter to verify the tape contains the required Release 6 software. This takes about 2 minutes.
4. Make note of the entire alphanumeric string of the software version. This information is used later.

Save Translations to Release 6 Tape

1. Enter **save translation tape** and press Enter. This instructs the system to write all translation information from memory to the tape. This takes about 10 minutes.

Save Announcements to Disk (TN750/B)

1. If the PPN contains a TN750/B Announcement circuit pack, enter **display announcements** and press Enter.
2. If administered recorded announcements are listed, enter **save announcements** and press Enter. This takes about 30 minutes.

NOTE:
The TN750C Announcement circuit pack stores announcements in non-volatile memory; saving the announcements is optional.

Copy Announcement to Release 6 Tape (TN750/B)

1. If the system contains a TN750/B Announcement circuit pack, enter **display announcements** and press Enter.
2. If administered recorded announcements are listed, enter **copy announce tape** and press Enter.

   NOTE:
   The TN750C Announcement circuit pack stores announcements in non-volatile memory; saving the announcements is not needed.

Restore Disk Full

1. Enter **restore disk full** and press Enter. This instructs the system to copy the entire tape to disk and takes about 30 minutes to complete. Release 6 system software with translations and announcements are now resident on the disk.

   NOTE:
   Until this command finishes, the system provides no user feedback on the management terminal. Do not press Enter while the command executes. Doing so causes the terminal screen to clear as the command finishes, erasing any success/failure messages the system may provide.

Upgrade Software

1. Enter **upgrade software G3v6r.xx.x.xxx.x** `<entire alphanumeric string of target software version>` and press Enter. This takes about 15 minutes to complete.

1. Login as **craft** at the `login:` prompt.
2. Check for the `Translation Corruption Detected` message before proceeding with the upgrade. If corruption is detected, refer to ''No Translations After Upgrade'' in Appendix B, ''Troubleshooting Upgrade Problems'' to correct the problem.

   CAUTION:
   Do not continue with the upgrade until the translations errors are corrected.

3. Enter **set time** and press Enter. Set the system time and date.

Enable TTI

1. Enter **change system-parameters features** and press Enter. Use this form to change the TTI field back to its previous value before the upgrade.

Enable Scheduled Maintenance

1. Enter **change system-parameters maintenance** and press Enter. Use this form to enable scheduled daily maintenance.

Resolve Alarms

1. Examine the alarm log. Resolve any alarms that may exist using *DEFINITY Enterprise Communications Server Release 6 Maintenance for R6r*.

Enable Customer Options and Alarm Origination

1. Get the DOSS order number of the upgrade and call the regional CSA to request an “init” login. The CSA assigns the Release 6 option, which automatically sets the 24-hour password aging for the customer logins.
2. Enter **change system-parameters customer-options** and press Enter.
3. Use these forms to verify the customer options are properly set.

   NOTE:
   If the customer was using Supplementary Services Protocol “b” or “d” on an ISDN-PRI trunk group before the upgrade, set the `Basic Call Setup` field to **y**.

4. Set the `Offer Category` field to **A**.
5. Set the `Activate Offer` field to **y** and press Enter.
6. Be sure the system is part of the existing INADS database by calling the INADS Database Administrator at the Technical Service Center (TSC). Verify that INADS can dial into the system and that the system can dial out to INADS.

   As part of the system registration process, the INADS Database Administrator enables Alarm Origination and customer options.

7. Logoff and log back in as **craft**.

Save Translations

1. Enter **save translation** and press Enter to get upgraded translations onto disk. This takes about 10 minutes.

Back Up Disk

1. Enter **backup disk** and press Enter to back up all changed files. This takes about 30 minutes.
2. Enter **test stored-data long** and press Enter. This instructs the system to verify the consistency of the MSS files (on the disk and tape).

Return Replaced Equipment

1. Return replaced equipment to Lucent Technologies according to the requirements outlined in:

   BCS/Material Logistics, MSL/Attended Stocking Locations

   Methods and Procedures for Basic Material Returns

High or Critical Reliability Systems

The following installation instructions are for Release 32.0. The Release 31.0 and earlier installation instructions are identical to Release 32.0 and later instructions except where noted as “Release 31.0 and Earlier Only.” If a Release 32.0 and later system is installed, do not perform the Release 31.0 or Earlier Only steps.

Check Software Release Letter

1. Check the *Software Release Letter* that accompanies the Release 6 tape. This letter contains the recommended upgrade procedures. Always use the *Software Release Letter* when upgrading a system.
2. If the letter is not included with the Release 6 tape, perform the following procedures.

Busyout Multimedia Interface Circuit Packs

Multimedia-to-voice station calls are *not* preserved on an upgrade. Failure to busy-out the TN787 Multimedia Interface circuit packs will result in unusable TN787 and TN788 Multimedia Voice Conditioner ports.

1. Enter **display system-parameters customer-options**. Scroll to page 2 of the form. If the MMCH option is set to **y**, continue to step 2. If not, skip to ‘‘Disable Scheduled Maintenance’’.
2. Enter **list configuration all**. Locate all of the TN787 Multimedia Interface circuit packs.
3. Enter **busyout board** <**location**> for each TN787. This prevents any further multimedia-to-voice connections and will drop any active connections.

Disable Scheduled Maintenance

1. Enter **change system-parameters maintenance** and press Enter. Disable scheduled daily maintenance so it does not interfere with the upgrade.

   NOTE:
   If scheduled maintenance has begun, set the value of the `Stop Time` field to 1 minute after the current time. If scheduled maintenance has not yet begun, change the value of the `Start Time` field to a time after the upgrade will be finished.

Save Translations to Original Tape (Both)

1. Enter **save translation tape both** and press Enter. This instructs the system to write all original translation information from memory to the tape and takes about 5 minutes.

Backup Disk

1. Enter **backup disk** to write all information from the disk to the tape. This takes 30 to 40 minutes.

Disable TTI

1. Enter **change system-parameters features** and press Enter. Use Page 2 of this form to prevent activation of the Terminal Translation Initialization (TTI) feature by changing the value to **n**.

Disable Alarm Origination to INADS

1. Enter **change system-parameters maintenance** and press Enter.
2. Enter **neither** in the `Alarm Origination to OSS Numbers` field and press Enter.
3. For some releases of software, disable `Cleared Alarm Notification` and `Restart Notification` before submitting the form.

CAUTION:
If Alarm Origination is not disabled, the system may generate alarms, resulting in unnecessary trouble tickets.

List Configuration Software Long

1. Clean the tape drives with the tape drive cleaning kit.
2. Insert the Release 6 tape.
3. Enter **list configuration software long** and press Enter to verify the tape contains the required Release 6 software. This takes about 2 minutes.
4. Make note of the entire alphanumeric string of the software version. This information is used later.

Save Translations to Release 6 Tape (Both)

1. Enter **save translation tape both** and press Enter. This instructs the system to write all translation information from memory to the tape.

Save Announcements to Disk (TN750/B)

1. If the PPN contains a TN750/B Announcement circuit pack, enter **display announcements** and press Enter.
2. If administered recorded announcements are listed, enter **save announcements** and press Enter.

NOTE:
The TN750C Announcement circuit pack stores announcements in non-volatile memory; saving the announcements is not needed.

Copy Announcement to Release 6 Tape (Both)

1. If the PPN contains a TN750/B Announcement circuit pack, enter **display announcements** and press Enter.
2. If administered recorded announcements are listed, enter **copy announce spe-a tape** and press Enter, and **copy announce spe-b tape** and press Enter.

NOTE:
The TN750C Announcement circuit pack stores announcements in non-volatile memory; saving the announcements is not needed.

Restore Disk Full (Both) (G3rV4 Only)

1. Verify that the disk drive is Vintage 4 or later.
2. Enter **restore disk full both** and press Enter. For both SPEs, this instructs the system to copy the entire tape to disk and takes about 30 minutes.

NOTE:
Until this command finishes, the system provides no feedback on the terminal screen. Do not press Enter while the command executes. Doing so causes the terminal screen to clear as the command finishes; erasing any success/ failure messages.

Upgrade Software (G3rV4 Only)

CAUTION:
For a software-only upgrade from a G3rV4, the "upgrade software" command is modified by the "no-calls" object. ***Failure to specify no-calls in the next step will result in system restart problems.*** *This is not call preserving. The service outage is about 2 minutes.*

1. Enter **upgrade software G3v6r.xx.x.xxx.x** <entire alphanumeric string of target software version> **no-calls**. The upgrade takes about 15 minutes.
2. Log in as **craft** at the `login:` prompt.
3. After about 2 minutes, enter **status spe**. The `standby handshake` field must be up before continuing with the upgrade.
4. Enter **reset spe standby 4**. This changes the standby SPE to active and vice versa. This takes about 10 minutes.
5. Enter **status spe**. The `handshake`, `refresh`, and `shadowing` fields must be up before continuing with the upgrade. Also, the standby side must be `in-service`.
6. Skip to ''Set Vector f SPE-Maint''.

Restore Disk Install (Both) (Release 5r Only)

1. Enter **restore disk Install both** and press Enter. For both SPEs, this instructs the system to copy the entire tape to disk and takes about 15 minutes to complete.

   NOTE:
   Until this command finishes, the system provides no user feedback on the management terminal screen. Do not press Enter while the command executes. Doing so causes the terminal screen to clear as the command finishes; erasing any success/ failure messages the system may provide.

Upgrade Software (Release 5r Only)

1. Enter **upgrade software G3v6r.xx.x.xxx.x** <entire alphanumeric string of target software version> and press Enter. This takes about 15 minutes.
2. Login as **craft** at the `login:` prompt.
3. Enter **set time** and press Enter. Set the system time and date.
4. After about 2 minutes, enter **status spe**. The `standby handshake` field must be up before continuing with the upgrade.

Reset SPE-Standby 4

1. Enter **reset spe standby 4**. This changes the standby SPE to active and vice versa. This takes about 10 minutes.
2. Enter **status spe**. The `handshake`, `refresh`, and `shadowing` fields must be up before continuing with the upgrade. Also, the standby side must be `in-service`. The heartbeat on the standby SPE flashes yellow.

Set Vector f SPE-Maint

1. Enter **set vector f spe-maint** and press Enter to set the core dump vector to perform a core dump on any system restart.

Enable TTI

1. Enter **change system-parameters features** and press Enter. Use this form to change the TTI field back to its previous value before the upgrade.

Enable Scheduled Maintenance

1. Enter **change system-parameters maintenance** and press Enter. Disable scheduled daily maintenance.

Resolve Alarms

1. Examine the alarm log. Resolve any alarms using *DEFINITY Enterprise Communications Server Release 6 Maintenance for R6r*.

Enable Customer Options and Alarm Origination

1. Get the DOSS order number of the upgrade and call the regional CSA to request an “init” login. The CSA assigns the V6 option, which automatically sets the 24-hour password aging for the customer logins.
2. Enter **change system-parameters customer-options** and press Enter. Use these forms to verify the customer options are properly set.

   NOTE:
   If the customer was using Supplementary Services Protocol “b” or “d” on an ISDN-PRI trunk group before the upgrade, set the `Basic Call Setup` field to **y**.

3. Set the `Offer Category` field to **A**.
4. Set the `Activate Offer` field to **y** and press Enter.
5. Be sure the system is part of the existing INADS database by calling the INADS Database Administrator at the Technical Service Center (TSC). Verify that INADS can dial into the system and that the system can dial out to INADS.

   As part of the system registration process, the INADS Database Administrator enables Alarm Origination and customer options.
6. Logoff and log back in as **craft**.

Save Translations

1. Enter **save translation** and press Enter to get upgraded translations onto disk. If the translations were corrupted during the upgrade, the following error message displays when logging in:

   WARNING:
   Translation corruption detected; call Lucent Technologies distributor immediately.

   NOTE:
   The **save translation** command cannot function if the translation corruption message appears.

   NOTE:
   If the new load must be returned to the previous software load, use the backup tape to go back to the old release. Boot the system from tape. Perform a full restore of the disk after rebooting.

Back Up Translations/Announcements to Spare Release 6 Tape

1. Remove the Release 6 system tape and install the spare Release 6 tape.
2. Enter **backup disk** and press Enter. This instructs the system to backup the current information on disk to the spare Release 6 tape.

   NOTE:
   This command takes 20 to 50 minutes to execute. Until this command finishes, the system provides no user feedback on the management terminal. Do not press Enter while the command executes. Doing so causes the terminal screen to clear as the command finishes, erasing any success/failure messages the system may provide.

3. Enter **test stored-data long** and press Enter. This instructs the system to verify the consistency of the MSS files (on the disk and tape).

Return Replaced Equipment

1. Return replaced equipment to Lucent Technologies according to the requirements outlined in:

   BCS/Material Logistics, MSL/Attended Stocking Locations

   Methods and Procedures for Basic Material Returns

Release 5si or Release 5si + Memory to Release 6r EPN

3

This chapter provides the information necessary to upgrade a Single-Carrier Cabinet (SCC) Release 5si or Release 5si + memory system with a TN790 RISC processor to a Release 6r EPN.

The existing SCC PPN is always upgraded to an EPN. The new Multi-Carrier Cabinet always serves as the PPN. Upgrading to an EPN for a Release 6r requires changing, and often restructuring, the expansion interface circuit packs. Hardware changes (including carrier replacement in the SCC cabinet) is required.

This upgrade assumes that the Release 6r cabinet has already been installed. If not, refer to *DEFINITY Enterprise Communications Server Release 6 Installation and Test for Multi-Carrier Cabinets* to install the Release 6r system. Return to this chapter when finished.

In this chapter, all occurrences of Release 5si and Release 5si + memory are called Release 5si unless a specific configuration is required to differentiate between product offerings.

DEFINITY Enterprise Communications Server Release 6 Administration and Feature Description lists Release 6 features and functions and provides the commands, procedures, and forms to initialize and administer the Release 6r.

Task Tables

Table 3-1 provides the high-level tasks to perform the upgrades in this chapter.

Table 3-1. Tasks to Upgrade to Release 6r System

✓	Task Description	Page
	Make Spare Translation Card and Mail to STS for Upgrade	3-8
	Busyout Multimedia Interface Circuit Packs	3-9
	Save Translations and Announcements	3-9
	Follow Routine Preventive Maintenance	3-12
	Label Cables	3-12
	Shut Down DEFINITY LAN Gateway System	3-12
	Shut Down DEFINITY AUDIX System	3-12
	Power Down Existing System	3-13
	Disconnect Power and Ground	3-13
	Install Emergency Transfer Ground Wire	3-13
	Disconnect Equipment and Cables	3-13
	Remove Circuit Packs	3-14
	Disconnect TDM/LAN Cables and ICC Cables	3-14
	Remove the Existing Control Cabinet	3-14
	Unpack and Install Expansion Control Cabinet	3-15
	Install Port Cabinets	3-15
	Install Circuit Packs	3-15
	Change Cabinet Address Plugs	3-16
	Install TDM/LAN Bus Terminators	3-17
	Connect TDM/LAN Cables and ICC Cables	3-19
	Interconnect Port Networks with Fiber Optic Cabling — Standard Reliability Release 6r	3-21
	Interconnect Port Networks with Fiber Optic Cabling — High Reliability Release 6r	3-26
	Interconnect Port Networks with Fiber Cabling — Critical Reliability Release 6r	3-33
	Connect Power and Ground	3-46

Continued on next page

Table 3-1. Tasks to Upgrade to Release 6r System — *Continued*

Read This First

Service Interruption

The upgrade process requires a service interruption of about 2 hours and must be closely coordinated with the customer and the local account team.

Call Management System (CMS)

The CMS link is dropped and restarted during the upgrade. This causes CMS data to be lost. This data loss can be minimized if the upgrade is performed just after the last CMS measurement interval.

All measurement data is lost during the upgrade (including BCMS). If needed, the reports may be printed before the upgrade begins.

CMS could abort the processing of a call if a measured trunk that was part of the conference dropped off the call before the end of the call. Customers experiencing this symptom and who are running R3V4 CMS should update to r3v4ao.e or higher.

Preventing Translation Errors

When instructed in this chapter, perform the **save translation** command. Afterward, check for translation errors before proceeding with the upgrade.

> **NOTE:**
> Be sure that the translations get saved without errors before continuing with any upgrade.

If errors are detected, refer to ''No Translations After Upgrade'' in Appendix B, ''Troubleshooting Upgrade Problems'' to correct the problem. Do not continue with the upgrade until the errors are corrected.

Communication Between Equipment Rooms

For an upgrade where some of the equipment resides at a remote location, the upgrade activity will be much easier if temporary communications are established between the equipment rooms.

Contact Network Technicians

The technician for each public and private network accessed by the switch must be contacted before the upgrade begins. Otherwise, if these technicians are not aware of the service interruption caused by the upgrade, it is possible that network-access trunk facilities will be busied out at the far end.

Relocation of Port Circuit Packs

With the possible exception of a port circuit pack in slot “01” of carrier “A” that must be moved for a TN570 Expansion Interface, an upgrade to Release 6 *does not* cause port circuit packs from the Release 5si control cabinet to be moved and manually retranslated. This is because a Release 5si PPN is always upgraded to an EPN. So, during the PPN upgrade to a Release 6r EPN, a Release 6r expansion control cabinet (with 14 to 16 available port slots) always replaces the Release 5si control cabinet (with 10 available port slots), providing a net gain of from 4 to 6 port slots.

If a port circuit pack does reside in slot “01” of control cabinet “A,” the STS software upgrade retranslates this circuit pack to reside in an empty port slot in the new expansion control cabinet.

For an upgrade to a critical reliability Release 6r, if a port circuit pack resides in slot “02” of port cabinet “B,” the STS software upgrade retranslates this circuit pack to occupy another empty port slot in the new expansion control cabinet.

To provide maximum holdover for a TN750/B Announcement circuit pack that did not reside in the control carrier, the STS software upgrade relocates this circuit pack to occupy another empty port slot in the new expansion control cabinet.

To ensure reliable DS1 timing in the upgraded Release 6r system, the STS software upgrade relocates the DS1 circuit packs serving as the primary and secondary timing sources to occupy 2 empty port slots in the new Release 6r PPN.

When connecting adjuncts to an upgraded Release 6r, STS locates any new interface circuit packs (including TN577 Packet Gateway, TN553 Packet Data Line, and TN726B Data Line) in the first available slots of the first PPN port carrier.

NOTE:
To find out where STS relocated these circuit packs, refer to the annotated ‘‘list configuration all'' that STS provides with the new Release 6r tape.

Usable Circuit Packs

Every circuit pack used in the upgraded Release 6r system must conform to the minimum usable vintage requirements for Release 6r. Those circuit packs shipped in the new Release 6r PPN or shipped loose with the new EPN equipment must meet the usable vintage specifications. In addition, at a presale site inspection, the Quality Protection Plan Change Notice (QPPCN) process must check the vintages of every Release 5si circuit pack that will be reused with the Release 6r and replace those circuit packs with unusable vintages. Refer to *Technical Quarterly*, Reference Guide for Circuit Pack Vintages and Change Notices, for current information about usable vintages in a Release 6r system.

Site Inspections

For the purposes of a Release 6r upgrade, most Release 5si systems are already equipped with the correct lightwave transceivers. Any older versions of these components must be replaced. The earlier versions of lightwave transceivers included the 4-series transceivers (4A through 4F). These transceivers supported fiber connections up to 7,000 feet (2133 m). Order the correct transceivers according to a separate PEC.

Power and Ground

The new multi-carrier PPN cabinet or any EPN cabinet added for the upgrade can be either AC or DC powered. If an added cabinet is powered differently from the existing cabinets, the existing cabinets do not have to be converted since mixed power configurations are allowed. However, the system's power and ground must be modified so the AC powered cabinets are grounded to the same single-point ground bar as the DC powered cabinets.

DC Isolator

Each management terminal connected to a DC-powered cabinet, by the asynchronous EIA RS-232 interface, requires a 116A isolator. The isolator is inserted at the RS-232 interface between the terminal and the interface connector to isolate ground between the system and external adjuncts.

Emergency Transfer Stations

During routine operation, the ground for the emergency transfer stations is derived from the system's auxiliary cable. Disconnect this ground during the upgrade to disable the stations. A ground strap is run to the emergency transfer panel. Connect this strap shortly after removing power and disconnect it just before restoring power to the upgraded system.

Converting the Translations

The translations in the Release 5si system must be copied to a spare translation card and sent to Software Technical Support (STS) to be converted and written to a Release 6r tape. This process takes 2 weeks. The Release 6r tapes (including 1 with translations) must be on-site before the upgrade begins. For each Release 6r processor, 2 tapes (1 system tape and 1 backup tape) must always be retained on site with the system.

Software Upgrades

After a software upgrade, several features require special attention because of form changes or potential naming conflicts in the upgrade process. Most of these changes and conflicts relate either to a software upgrade from standard ACD to Call Vectoring or to changes in the ARS/AAR features to compensate for increasing uncertainty in the North American numbering plan. Also, if ARS is enabled (when upgrading from IR1 Release 6 to GD-91 software), it may be necessary to modify the Call Type field on the ARS Analysis form to “unk” for all call types except “iop” or “int.”

After the upgrade, the Software Associate should check these forms to ensure the upgraded translations are appropriate for the customer’s needs. Refer to *DEFINITY Enterprise Communications Server Release 6 Administration and Feature Description*, for information to make any required changes.

ISDN Gateway

When upgrading to a Release 6r, upgrade the ISDN Gateway (if installed) to the correct software release. Call progress messages to the ISDN Gateway may be intermittently lost, therefore, this upgrade must occur at the same time as the system upgrade.

Contact your Lucent Technologies representative for the correct software release.

Single-Mode Fiber Attenuators

Attenuators may be required when using single-mode fiber. See the table below.

106060718	5 dB attenuator	2 for each fiber connection
106060734	10 dB attenuator	2 for each fiber connection
106061021	15 dB attenuator	2 for each fiber connection

A different value attenuator may be required even though the fiber span is between the same 2 cabinets (local and remote cabinet). Refer to *DEFINITY Enterprise Communications Server Release 6 Installation and Test for Multi-Carrier Cabinets* for detailed fiber attenuator information.

Preliminary Procedures

During an upgrade, STS must convert the Release 5si translations and write them to a Release 6r tape. The tape is sent to STS for conversion. During this time, the customer should put a freeze on any new translations while the spare tape is being converted. If not, be sure the customer's switch administrator keeps detailed records of any translation changes made during that interval. These records will facilitate the reassignment of any changes after the upgrade. The new Release 6r tapes (1 with the converted translations, 2 if duplicated and the rest blank) must be on-site before the upgrade begins.

Since a new Release 6r PPN is installed during the upgrade, STS changes the PN number of the Release 5si PPN to be converted to a Release 6r EPN. To minimize the renumbering of PNs and to minimize the rewiring and relabeling of the MDF, the tape conversion assigns the next PN number (after the highest numbered PN in the system) to the Release 5si PPN to become a Release 6r EPN. For example, if a Release 5si system with 2 PNs (a PPN and an EPN) were upgraded to a Release 6r, the tape conversion software assigns PN ‘‘1” to the new PPN and PN ‘‘3” to the additional EPN derived from the old Release 5si PPN.

Make Spare Translation Card and Mail to STS for Upgrade

A spare translation card must be acquired from the QPPCN before upgrading the system. For each processor, there must always be 2 translation cards on site with the system. Do not send a system or backup translation card to STS.

1. Install the spare translation card into the TN777B on the existing system.
2. Enter **save translation**. Press Enter. This instructs the system to write all translation information from memory to the translation card.

   NOTE:
   The off-site STS translation upgrade does not preserve the content of recorded announcements. Therefore, during the upgrade, any announcements stored on a TN750/B circuit pack must be re-recorded.

3. Remove the spare translation card and insert the system translation card.
4. Mail the spare translation card to STS (with next-day delivery).

Check Software Release Letter

1. Check the *Software Release Letter* that accompanies the Release 6 tape. This letter contains the recommended upgrade procedures. Always use the *Software Release Letter* when upgrading a system.
2. If the letter is not included with the Release 6 tape, perform the following procedures.

Busyout Multimedia Interface Circuit Packs

Perform this step only if the system is high or critical reliability and contains MMCH circuit packs. Multimedia-to-voice station calls are *not* preserved on an upgrade. Failure to busy-out the TN787 Multimedia Interface circuit packs will result in unusable TN787 and TN788 Multimedia Voice Conditioner ports.

1. Enter **display system-parameters customer-options**. If the MMCH option is set to **y**, continue to step 2. If not, skip to ''Save Translations and Announcements''.
2. Enter **list configuration all**. Locate all of the TN787 Multimedia Interface circuit packs.
3. Enter **busyout board** <**location**> for each TN787. This prevents any further multimedia-to-voice connections and drops all active connections.

Save Translations and Announcements

1. Log in at the management terminal on the Release 5 system.
2. If the system is duplex, enter **status system** and press Enter to verify the system is in the ''active/standby'' mode.
3. Enter **save translation**. Press Enter. This instructs the system to write all translation information from memory to the translation cards.
4. Check for translation errors before proceeding with the upgrade. If errors are detected, refer to ''No Translations After Upgrade'' in Appendix B, ''Troubleshooting Upgrade Problems'' to correct the problem. Do not continue until the errors are corrected.
5. If the system contains a TN750/B Announcement circuit pack, enter **display announcements** and press Enter.
6. If administered recorded announcements are listed, enter **save announcements** and press Enter.
7. Remove the translation card and install the backup tape or card.

Release 5si to Release 6r

During the wiring of the PPN installation, label the MDF with the new PN number of the Release 5si PPN. The STS software upgrade assigns the next PN number (after the highest numbered PN in the Release 5si system) to the upgraded Release 6r EPN.

Required Tools

The following tools and items may be required during the upgrade:

- 1/4-inch flat blade screwdriver
- 1/4-inch socket with ratchet (optional)
- Long-nose pliers to straighten backplane pins
- Static-proof or original circuit pack packaging for transporting circuit packs
- Labels for identifying the port circuit packs and cables attached to the rear of cabinets
- Repair kit for backplane pins (KS-22876 L2 or equivalent)
- One copy of each of the following manuals:
  - *DEFINITY Enterprise Communications Server Release 6 Maintenance for R6r*
  - *DEFINITY Enterprise Communications Server Release 6 Administration and Feature Description*

Required Hardware

The equipment in Table 3-2 must be on-site before the upgrade begins.

Table 3-2. Required Hardware

Equipment	Description	Quantity
J58890N	Expansion Control Cabinet	1
106647985	TN775B Maintenance circuit pack	1
103281788	TN570 Expansion Interface circuit pack	Depends on reliability type and number of PNs
103281812	TN573B Switched Node Interface circuit pack	Depends on reliability type and number of PNs
407439975 or 407598325	20-Foot Multi-Mode Fiber Optic Cable 20-Foot Single-Mode Fiber Optic Cable	1 to 12
106455348 or 106455363 or 107731853	9823-A Lightwave Transceiver 9823-B Lightwave Transceiver 300A Lightwave Transceiver	2 to 12[1] 2 to 12[1] 2 to 12[2]
J58890TF L9	Release 6 Tape Cartridge	2 or 4[3]
106689516	TN771D Maintenance Test circuit pack	1 or 2[4]
846307817	Lower Rear Cover	1[5]
846307809	Ground Plate	1
H600-248 G1	ICC Cables	2[6]
846408268	Earthquake Front Panel (earthquake protection only)	1
846408386	Earthquake Ground Plate (earthquake protection only)	1
846408250	Stiffener (earthquake protection only)	1
846408243	Earthquake Front Mounting Angle (earthquake protection only)	1
106060718	5 dB attenuator (single-mode fiber only)	2 for each fiber connection[2]
106060734	10 dB attenuator (single-mode fiber only)	2 for each fiber connection[2]
106061021	15 dB attenuator (single-mode fiber only)	2 for each fiber connection[2]

1. For each fiber connection, 1 lightwave transceiver is installed in 1 port network, and a like transceiver in the adjacent port network. 4E transceivers cannot be reused. Additional transceivers, ordered separately, ship loose with the EPN equipment.
2. The 300A is connected using 2 fiber optic cables. 5, 10, or 15 dB attenuators may be required.
3. Depending on the reliability type of the Release 6r system. Two tapes are required for a standard reliability system; 4 for a high or critical reliability system.
4. Depending on the number of EPNs in a critical reliability Release 6r system.
5. Required for the ‘‘B" port cabinet of a critical reliability Release 6r EPN.
6. Required for a critical reliability Release 6r EPN.

Follow Routine Preventive Maintenance

1. During the upgrade, follow routine preventive maintenance procedures on the system to be upgraded. For more information, refer to the “Preventive Maintenance” section in *DEFINITY Enterprise Communications Server Release 6 Maintenance for R6r*.

Label Cables

1. To make reconnecting the cables simpler and more reliable, label every connector cable associated with the system.

Shut Down DEFINITY LAN Gateway System

> **WARNING:**
> *Neglecting to shut down a DEFINITY LAN Gateway assembly before powering down the system cabinet can damage the LAN Gateway disk.*

1. Log onto the DEFINITY LAN Gateway. See the *DEFINITY Communications System Generic 3 Installation, Administration and Maintenance of CallVisor ASAI over the DEFINITY LAN Gateway*, 555-230-223, for the procedure to log on.
2. When the main menu appears, select *Maintenance*.
3. Select *Reset System* from the *Maintenance* menu.
4. Select *Shutdown* from the *Reset System* menu.
5. Unseat the LAN Gateway assembly from its backplane connectors.

Shut Down DEFINITY AUDIX System

1. If a DEFINITY AUDIX System resides in the system to be upgraded, shut down the AUDIX assembly and allow the disk to completely spin down. Refer to the ‘‘DEFINITY AUDIX Power Procedures’’ at the end of this chapter.

   > **WARNING:**
   > *Neglecting to shut down an AUDIX assembly before powering down the system cabinet where it resides can damage the AUDIX disk.*

2. Unseat the AUDIX assembly from its backplane connectors.

Power Down Existing System

1. At each PPN cabinet power supply, set the main circuit breaker to OFF.

   CAUTION:
   Powering down the PPN will cause important system data, such as BCMS data, records of queued ACD calls, Automatic Wakeup requests, and Do Not Disturb requests to be lost. Refer to DEFINITY Enterprise Communications Server Release 6 Maintenance for R6r, for information about preparing the system for a power down.

2. At each EPN cabinet power supply, set the main circuit breaker to OFF.

Disconnect Power and Ground

1. Disconnect the cabinet power cords from the rear of each cabinet.
2. Disconnect the 10 AWG (#25) (2.6 mm) coupled bonding conductor wire.
3. Disconnect the 6 AWG (#40) (4.1 mm) cabinet ground wire from the ground bar in the cabinet.

Install Emergency Transfer Ground Wire

CAUTION:
To avoid contaminating single-point ground, do not connect the ground strap while the system is powered up.

1. Connect a 10 AWG (#25) (2.6 mm) wire either to pin 49 of the connecting block or to pin 49 of the CAP (cable access panel) associated with the emergency transfer panel.
2. Route the other end of the wire to an approved ground and connect.

Disconnect Equipment and Cables

1. Disconnect all of the connector cables attaching to the PPN.
2. Disconnect the management terminal from the TERM connector.
3. Remove the ground plate(s) from between all of the PPN cabinets.
4. Remove the top and bottom rear covers from all of the PPN cabinets.

Remove Circuit Packs

1. Label each port circuit pack in the control cabinet with its slot number.
2. Remove all circuit packs and power units from the control cabinet. Store the circuit packs in the static-proof packaging.

NOTE:
If a TN756 tone-detector/generator was removed from the Release 5si, a new Release 6r tone clock (TN2182) should replace this circuit pack. The TN2182 Tone-Clock serves to replace the tone detector circuits on the TN756. If a TN2182 is used, no TN748B is required.

Disconnect TDM/LAN Cables and ICC Cables

1. Remove and retain all of the TDM/LAN cables.
2. If the Release 5si system is standard reliability, remove and retain the ICC cables.
3. If the Release 5si system is duplicated, remove the ICC cables. They are replaced with new ICC cables (H600-248 G1).

Remove the Existing Control Cabinet

Since the control cabinet is at the bottom of the port network, dismantle the cabinet stack. Disconnect all the power, ground, TDM, ICC, and connector cables.

1. Remove the cabinet clip between each cabinet or front earthquake plate as provided.
2. Remove the rear ground plate.
3. Remove the port cabinets from the stack.

CAUTION:
A port cabinet may weigh as much as 125 pounds. Use lifting precautions.

4. If the system is duplicated, remove the control cabinet in position ‘‘B." It is not reused.
5. If the basic control cabinet in position ‘‘A" is earthquake mounted, remove and retain the hardware securing the cabinet to the floor.
6. Remove the basic control cabinet. It is not reused.

Unpack and Install Expansion Control Cabinet

1. Unpack and inspect the J58890N Expansion Control Cabinet.
2. Position the expansion control cabinet at the desired location.
3. Reinstall the earthquake mounting hardware, if required.

Install Port Cabinets

1. Replace the port cabinets into their proper positions.

   NOTE:
   For a duplicated Release 5si, the J58890M Control Cabinet can be replaced by a J58890H Port Cabinet in position ‘‘B.''

Install Circuit Packs

1. Replace the circuit packs and power supplies in port cabinets “C” and “D” if they were previously removed.
2. Using the label on the front of the carrier and the annotated “list configuration all” (provided with the Release 6r tape), install the control circuit packs into the new expansion control cabinet.
3. Install the port circuit packs into the “A” cabinet using the label on the front of the carrier and the annotated “list configuration all” as a guide.

   NOTE:
   Since the new Release 6r expansion control carrier has 6 more port slots than the removed control carrier, there should be no need to retranslate these circuit packs.

4. For an EPN in a critical reliability system, install a TN2182B Tone-Clock and a TN570 EI in slots “1” and “2” of port cabinet “B.” See Table 3-3.

Table 3-3. TN570 Expansion Interface Requirements

Cabinet	2 PNs w/o Critical Reliability	2 PNs w/Critical Reliability	3 PNs w/o Critical Reliability	3 PNs w/Critical Reliability
PPN	1	2	2	4
EPN 1	1	2	2	4
EPN 2	N/A	N/A	2	4

Change Cabinet Address Plugs

If a duplicated control cabinet was removed from position "B" and was not replaced with a new port cabinet, the upgraded EPN's port cabinets occupy different positions in the cabinet stack.

1. Behind each port cabinet, find the address plug attached to 2 of the 6 backplane pins to the right of the pin-field block for slot "00."
2. Change the location of each port cabinet address plug to reflect the cabinet's current position. See Figure 3-1.

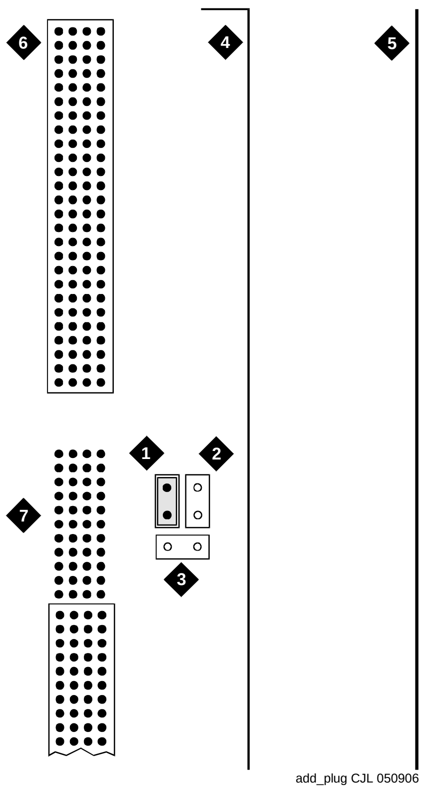


Figure Notes

1. Address Plug (Shown Set to Carrier D)
2. Carrier B Jumper Location (Default)
3. Carrier C Jumper Location
4. Right Edge of Backplane
5. Right Edge of Cabinet
6. Backplane Slot 00
7. To Connector Panel

Figure 3-1. Cabinet Address Plug Location

Install TDM/LAN Bus Terminators

1. If the Release 5si PPN has only 1 cabinet, install the 2 AHF110 TDM/LAN bus terminators per Figure 3-2.

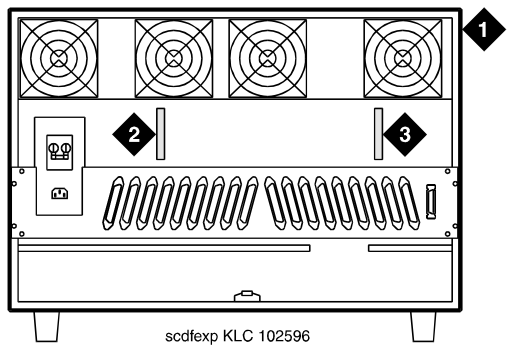


Figure Notes

1. Control Cabinet (“A” Position)
2. AHF110 TDM LAN/Bus Terminator (Slot 18)
3. AHF110 TDM LAN/Bus Terminator (Slot 01)

Figure 3-2. TDM/LAN Bus Terminators for Single-Carrier Cabinet EPN

2. If the Release 5si PPN has more than 1 cabinet:
   a. Install the AHF110 TDM/LAN bus terminator in Slot 03 on the right side of the expansion control cabinet as shown in Figure 3-3.
   b. Install the AHF110 TDM/LAN bus terminator on the top port cabinet, at the end of the daisy chain of the bus.

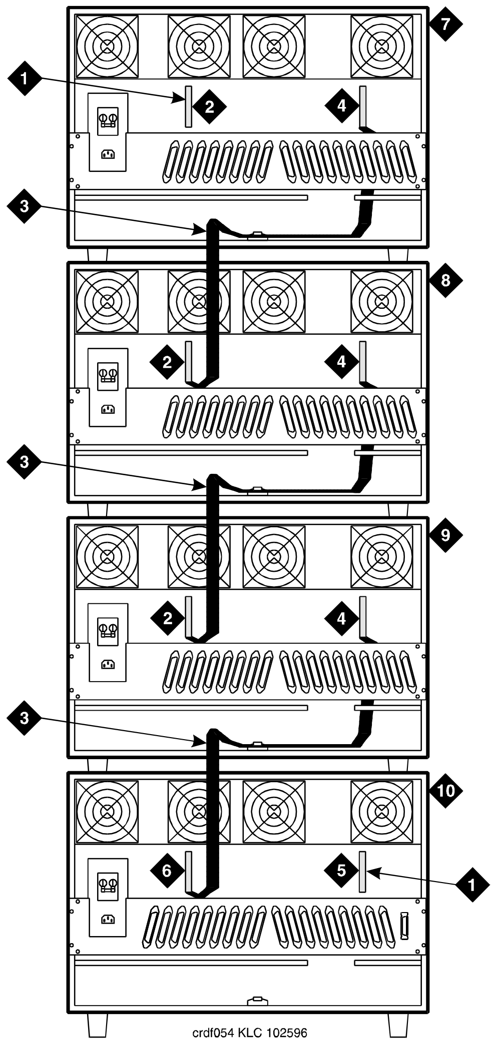


Figure Notes

1. AHF110 TDM LAN/Bus Terminator
2. Slot 17
3. TDM/LAN Cable (WP91716 L3)
4. Slot 00
5. Slot 03
6. Slot 18
7. J58890H Port Cabinet (“D” Position)
8. J58890H Port Cabinet (“C” Position)
9. J58890H Port Cabinet (“B” Position)
10. J58890NExpansion Control Cabinet (“A” Position)

Figure 3-3. TDM/LAN Connections for Release 5si EPN

Connect TDM/LAN Cables and ICC Cables

1. Route and connect the TDM/LAN cables. If any of the Release 5si port cabinets (being upgraded to Release 6r cabinets) were originally R1V3 port cabinets, use the following steps to route a cable between an R1V3 upper cabinet and cabinet beneath it. Do not run a new cable through the existing slot in the rear shelf of the upper cabinet.
   a. Loosen the 2 left connector panel screws, then remove the other 2 connector panel screws.
   b. Attach the TDM/LAN cable to the backplane and slide the cable between the connector panel and the rear shelf (not through the existing slot in the shelf). Route the cable along the bottom of the cabinet.
   c. Replace and tighten the connector panel screws.
2. For a critical reliability system, connect the ICC cables as shown in Table 3-4, Figure 3-4, and Figure 3-5.

NOTE:
For a duplicated cabinet, do not use the ICC cables (H600-259 G1) removed from the duplicated Release 5si PPN. Use the new ICC cables (H600-248 G1) supplied with the upgrade.

Table 3-4. Intercabinet Cable Connections

Connect ICC Cables				
	From		To	
	Carrier	Pin-Field Block	Carrier	Pin-Field Block
EPN	J58890N	ICCA	J58890H	ICCA
		ICCB		ICCB

3. On the “A” carrier, verify the CFY1 current limiter (CURL) connects to pinfield block “00” (see Figure 3-4).

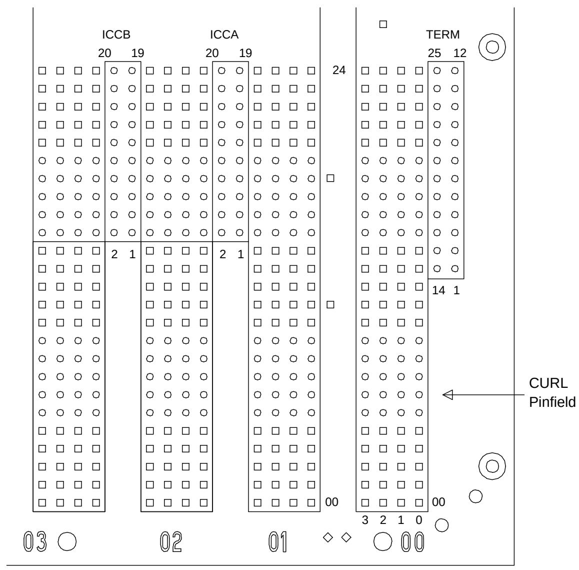


Figure 3-4. ICC Pinfield Blocks on J58890N Expansion Control Cabinet

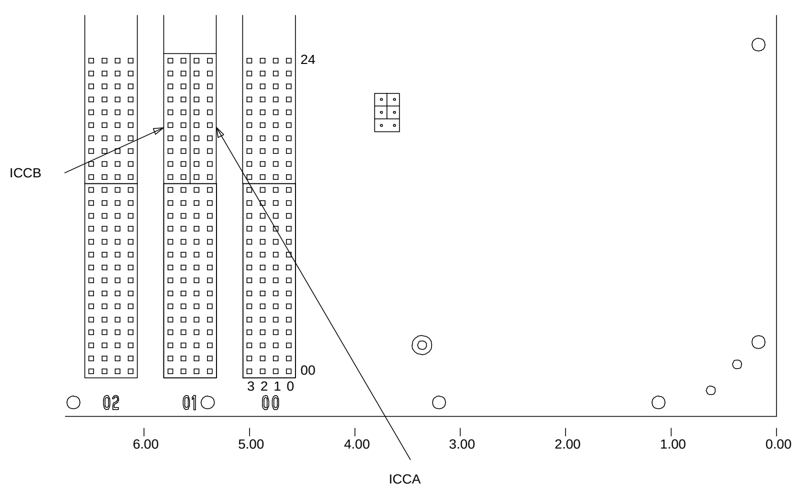


Figure 3-5. ICC Pinfield Blocks on J58890H Port Cabinet

Interconnect Port Networks with Fiber Optic Cabling — Standard Reliability Release 6r

After all fiber optic equipment is installed, refer to Chapter A, ‘‘Fiber Link Administration’’.

1. Keep track of which fiber attaches to which connector on each lightwave transceiver. Label every cable installed. This section provides figures showing typical examples of these connections.

The connectors on the lightwave transceivers are labeled “TX” (transmit) or “RX” (receive), while the fibers attaching to each connector are numbered either “1” or “2.” See Figure 3-7.

Collocated Port Networks

For a standard reliability system with 1 collocated EPN, use 1 fiber optic cable and 2 lightwave transceivers to directly connect the networks.

For a standard reliability system with 2 collocated EPNs, use 3 fiber optic cables and 6 lightwave transceivers to directly connect the networks.

NOTE:
Based on floor plan considerations, the length of these cables may vary. 20-foot (6.1 m) cables are normally adequate for a Release 6r with 2 PNs.

For collocated cabinets, route the fiber optic cables directly from the PPN to each EPN cabinet. Since a Release 6r PPN cabinet is collocated with a Single-Carrier Cabinet stack, the preferred routing is to run the cables *down* the cable tray and out the bottom of the PPN cabinet. The cables are then run to the EPN cabinet and up the outside of the rear panels to the desired carrier level.

Fiber Remoted Port Networks

For a standard reliability system with 1 fiber-remoted EPN, use 2 fiber optic cables,2 lightwave transceivers, and 2 lightguide interface units (provided by the PSC).

For a standard reliability system with 2 fiber-remoted EPNs, use 6 fiber optic cables, 6 lightwave transceivers, and 6 lightguide interface units (provided by the PSC).

DS1 CONV-Remoted Port Networks

For a standard reliability system with 1 DS1 CONV-remoted EPN, use 2 DS1 CONV circuit packs (TN1654), 2 DS1 Conv-to-EI cables (846448637 and/or 846448645), two H-600-348 cables, from 1 to 4 pairs of Channel Service Units (CSUs), and from 1 to 4 pairs of MDF cables (provided with the CSUs).

NOTE:
The TN1654 requires the use of a TN573B Switched Node Interface circuit pack

For a standard reliability system with 2 DS1 CONV-remoted EPNs, this arrangement requires:

- 6 DS1 CONV circuit packs (TN1654)
- 6 DS1 CONV-to-EI cables (846448637 and/or 846448645)
- 6 H-600-348 cables
- 3, 6, 9, or 12 pairs of CSUs
- 3, 6, 9, or 12 pairs of wall-field cables (provided with CSUs)
- 5, 10, or 15 dB attenuators (single-mode fiber only).

5dB Attenuator	106060718
10dB Attenuator	106060734
15dB Attenuator	106061021

For 1 or 2 Collocated Expansion Port Networks

1. Behind port carrier B of the multi-carrier PPN. See Figure 3-6 and Figure 3-7:
   a. Install a lightwave transceiver on the connector at slot 1B02.

      NOTE:
      Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

   b. Connect 1 end of the appropriate fiber optic cable to the lightwave transceiver at slot 1B02.
   c. Route the fiber optic cable from the lightwave transceiver to the cabinet's cable tray and down out of the cabinet to the EPN stack.
   d. Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
2. Behind control cabinet A of EPN stack 2:
   a. Install a lightwave transceiver on the connector at slot 2A01.

b. Connect the other end of the fiber optic cable from the PPN to the lightwave transceiver at slot 2A01.

c. Carefully attach the fiber optic cable (with cable ties) to the rear covers of the EPN stack.

d. Coil up the surplus length of fiber optic cable, and place the coil either in the cable manager or on the bottom shelf (holding the power supply) of the PPN cabinet.

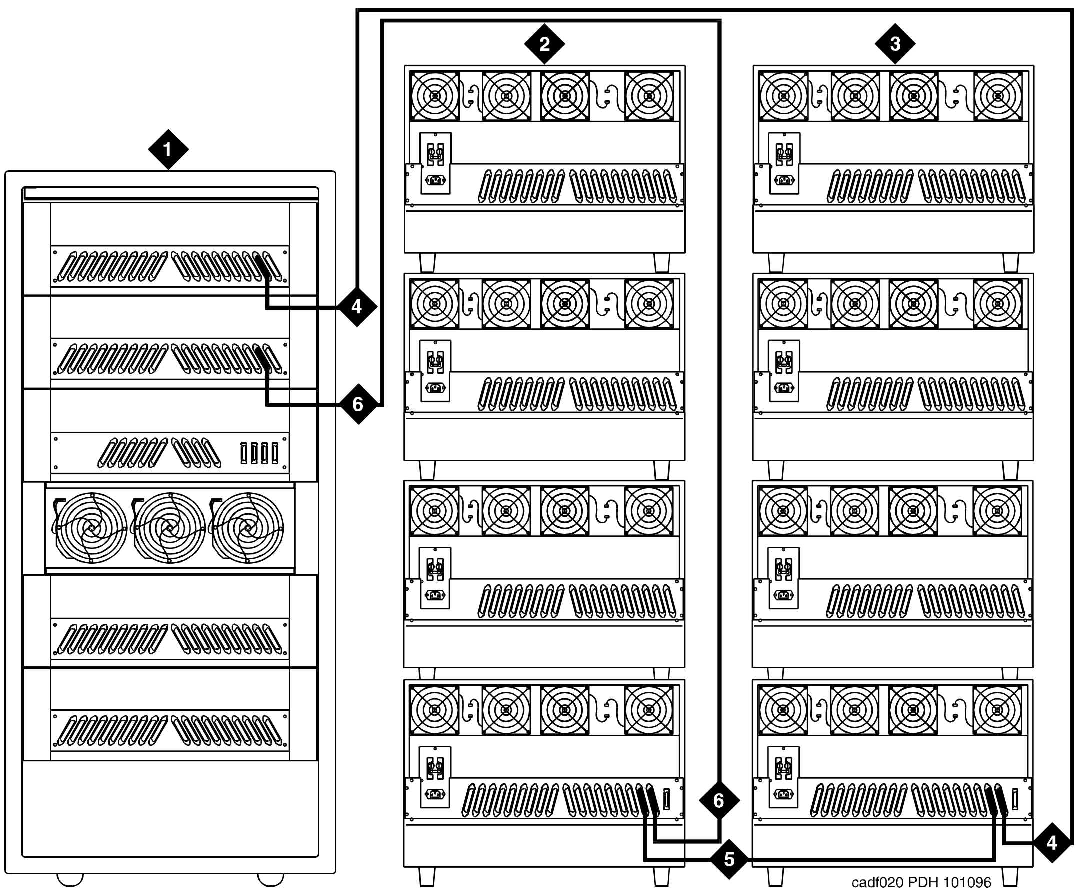


Figure Notes

11. Cabinet 1 PPN
12. Cabinet Stack 2 EPN 1
13. Cabinet Stack 3 EPN 2
14. From Cabinet 3 A1 to Cabinet 1 C2
15. From Cabinet 2 A2 to Cabinet 3 A2
16. From Cabinet 1 B2 to Cabinet 2 A1

Figure 3-6. Standard Reliability Release 6r with 2 or 3 Port Networks

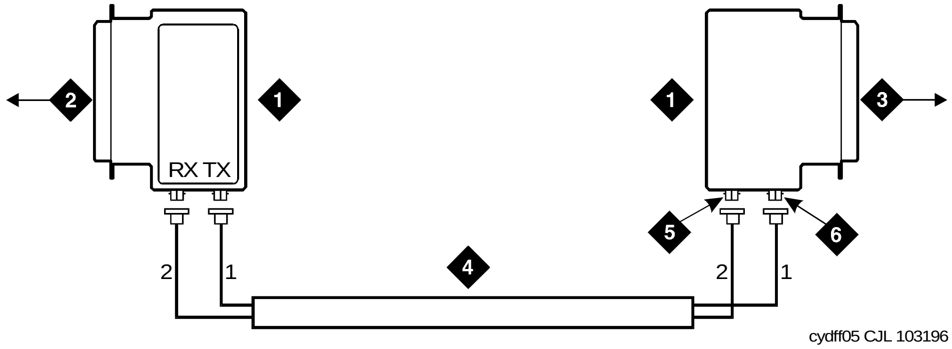


Figure Notes

1. Lightwave Transceiver
2. To PPN Carrier B Slot 1B02
3. To EPN 1 Carrier A Slot 2A01 (Cabinet Stack 2)
4. Fiber Optic Cable
5. TX Connector
6. RX Connector

Figure 3-7. Typical Fiber Optic Connections

For 1 or 2 Fiber-Remoted Expansion Port Networks

1. Behind port carrier B of the multi-carrier PPN. See Figure 3-6 and Figure 3-8:
   a. Install a lightwave transceiver on the connector at slot 1B02.

      NOTE:
      Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

   b. Connect a fiber optic cable to the transceiver just installed.
   c. Route the cable to the cabinet cable tray and out of the cabinet through the cable manager to the PDS cross-connect facility.
   d. Connect the fiber cable to the lightguide interface unit provided.
   e. Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.

2. Behind control cabinet A of EPN stack 2:
   a. Install a lightwave transceiver on the connector at slot 2A01.
   b. Connect a fiber optic cable to the transceiver just installed.
   c. Route the cable down the outside of the rear covers and through the cable manager to the PDS cross-connect facility.
   d. Connect the fiber optic cable to the lightguide interface unit.
   e. Carefully attach the fiber optic cable (with cable ties) to the rear covers of the EPN stack.
   f. Coil up the surplus fiber optic cable and place the coil it in the cable manager.

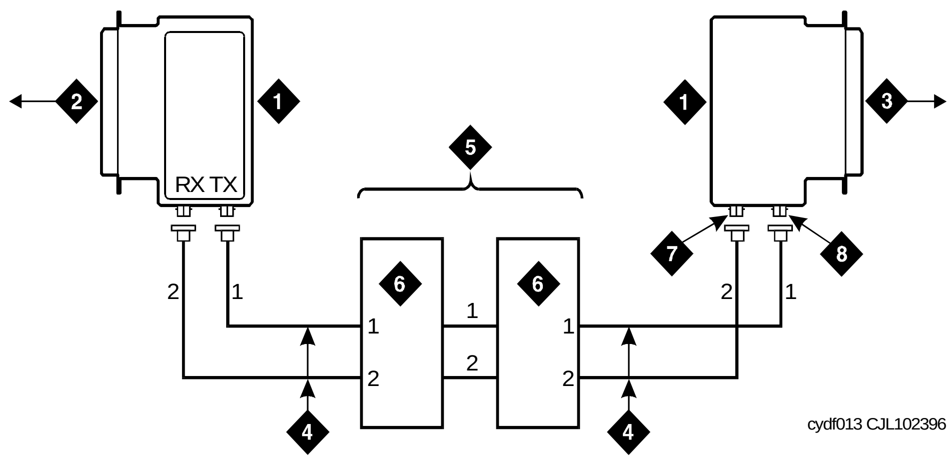


Figure Notes

1. Lightwave Transceiver
2. PPN Carrier B Slot 1B02
3. EPN 1 Carrier A Slot 2A01 (Cabinet Stack 2)
4. Fiber Optic Cable
5. Fiber Optic Cross-Connect Facility
6. Lightguide Interface Unit (LIU)
7. TX Connector
8. RX Connector

Figure 3-8. Fiber Optic Connections PPN to EPN1

Interconnect Port Networks with Fiber Optic Cabling — High Reliability Release 6r

1. Keep track of which fiber attaches to which connector on each lightwave transceiver.

This section provides figures showing typical ways of making these connections. The connectors on the lightwave transceivers are labeled "TX" (transmit) or "RX" (receive), while the fibers attaching to each connector are numbered "1" or "2." See Figure 3-10.

Collocated Port Networks

For a high reliability system with 1 collocated EPN, use 1 fiber optic cable and 2 lightwave transceivers, or 1 single-mode fiber optic cable and 2 single-mode lightwave transceivers to directly connect the networks.

For a high reliability system with 2 collocated EPN, use 3 fiber optic cables and 6 lightwave transceivers, or 3 single-mode fiber optic cables and 6 single-mode lightwave transceivers to directly connect the networks.

NOTE:
Based on floor plan considerations, the length of these cables may vary. 20-foot (6.1 m) cables are normally adequate for a Release 6r with 2 port networks.

For collocated cabinets, route the fiber optic cables directly from the PPN to each EPN cabinet. Since a Release 6r PPN cabinet is collocated with a Single-Carrier Cabinet stack, the preferred routing is to run the cables *down* the cable tray and out the bottom of the PPN cabinet. The cables are then run to the EPN cabinet and up the outside of the rear panels to the desired carrier.

Fiber-Remoted Port Networks

For a high reliability system with 1 fiber-remoted EPN, use 2 fiber optic cables, 2 lightwave transceivers, and 2 lightguide interface units (provided by the PSC).

For a high reliability system with 2 fiber-remoted EPNs, use 6 fiber optic cables, 6 lightwave transceivers, and 6 lightwave-interface units (provided by the PSC).

DS1 CONV-Remoted Port Networks

For a high reliability system with 1 DS1 CONV-remoted expansion port network, use 2 DS1 CONV circuit packs (TN1654), 2 DS1 CONV-to-EI cables (846448637 and/or 846448645), 2 H-600-348 cables, from 1 to 4 pairs of channel service units (CSUs), and from 1 to 4 pairs of wall-field cables (provided with the CSUs).

NOTE:
The TN1654 requires a TN573B Switch Node Interface circuit pack

For a high reliability system with 2 DS1 Conv-remoted expansion port networks, this arrangement requires:

- 6 DS1 Converter circuit packs (TN1654)
- 6 DS1 Converter-to-EI cables (846448637 and/or 846448645)
- 6 H-600-348 cables
- 3, 6, 9, or 12 pairs of CSUs
- 3, 6, 9, or 12 pairs of wall-field cables (provided with CSUs)

For 1 or 2 Collocated Expansion Port Networks

1. Behind port carrier C of the multi-carrier PPN. See Figure 3-9 and Figure 3-10:
   a. Install a lightwave transceiver on the connector at slot 1C02.

      NOTE:
      Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

   b. Connect 1 end of the appropriate fiber optic cable to the lightwave transceiver at slot 1C02.
   c. Route the fiber optic cable from the lightwave transceiver to the cabinet's cable tray and down, out of the cabinet, to the EPN stack.
   d. Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
2. Behind control cabinet A EPN stack 2:
   a. Install a lightwave transceiver on the connector at slot 2A01.

      NOTE:
      Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

   b. Connect the other end of the fiber optic cable from the PPN to the lightwave transceiver at slot 2A01.
   c. Carefully attach the fiber optic cable (with cable ties) to the rear covers of the EPN stack.
   d. Coil up the surplus fiber optic cable, and place the coil either in the cable manager or on the bottom shelf (holding the power supply) of the PPN cabinet.

For 2 Collocated Expansion Port Networks

1. Behind port carrier D of the multi-carrier PPN:
   a. Install a lightwave transceiver on the connector at slot 1D02.

      NOTE:
      Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

   b. Connect 1 end of the appropriate fiber optic cable to the lightwave transceiver at slot 1D02.
   c. Route the cable to the cabinet's cable tray and down, out of the cabinet, to the EPN stack.
   d. Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
2. Behind control cabinet A of EPN stack 3:
   a. Install a lightwave transceiver on the connector at slot 3A01.

      NOTE:
      Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

   b. Connect the other end of the fiber optic cable from the PPN to the lightwave transceiver at slot 3A01.
   c. Carefully attach the fiber optic cable (with cable ties) to the rear covers of the EPN stack.
   d. Coil the surplus fiber optic cable and place it either in the cable manager or on the bottom shelf (holding the power supply) of the PPN cabinet.
3. Behind control cabinet A of EPN stack 2:
   a. Install a lightwave transceiver on the connector at slot 2A02.

      NOTE:
      Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

   b. Connect a fiber optic cable to the transceiver just installed.
   c. Route the cable down the outside of the rear covers to the other EPN stack.
   d. Carefully attach the fiber optic cable (with cable ties) to the rear covers of the EPN stack.

4. Behind control cabinet A of EPN stack 3:

   a. Install a lightwave transceiver on the connector at slot 3A02.

      NOTE:
      Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

   b. Connect the other end of the fiber optic cable from the PPN to the lightwave transceiver at slot 3A02.

   c. Carefully attach the fiber optic cable (with cable ties) to the rear covers of the EPN stack.

   d. Coil the surplus fiber optic cable and attach it (with a cable tie) to a leg of an EPN cable clamp.

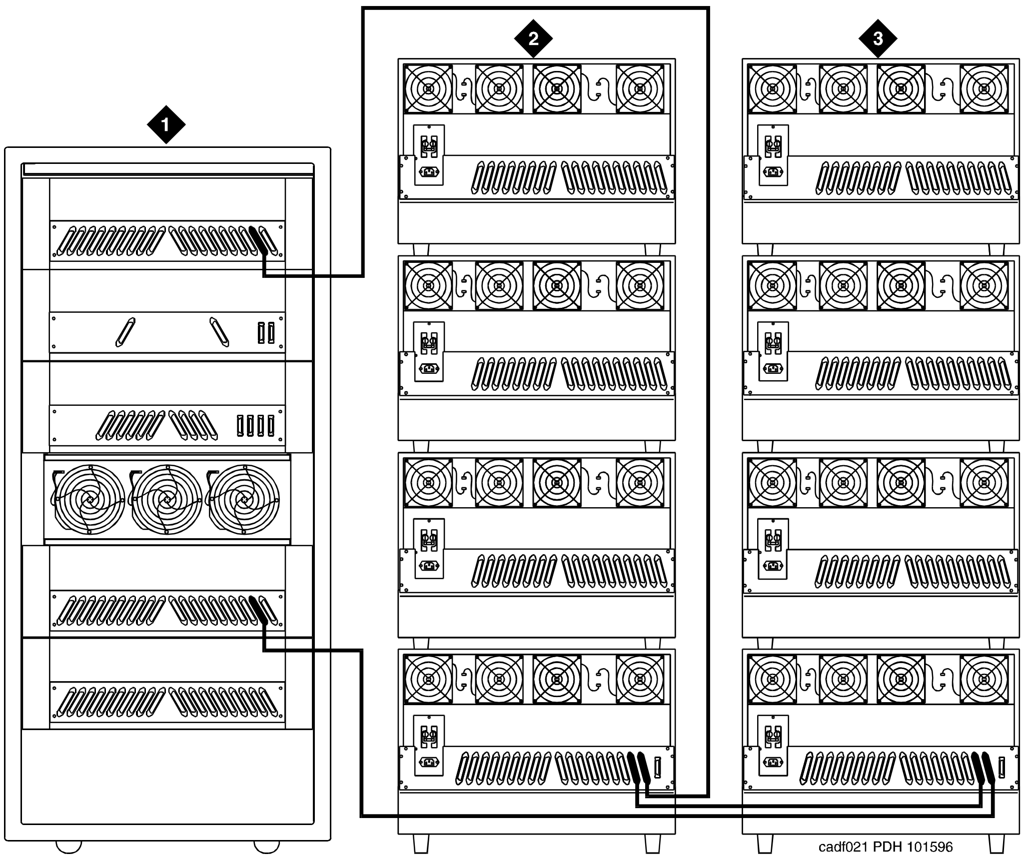


Figure Notes

1. Cabinet 1 PPN
2. Cabinet Stack 2 EPN 1
3. Cabinet Stack 3 EPN 2

Figure 3-9. High Reliability Release 6r with 2 or 3 Port Networks

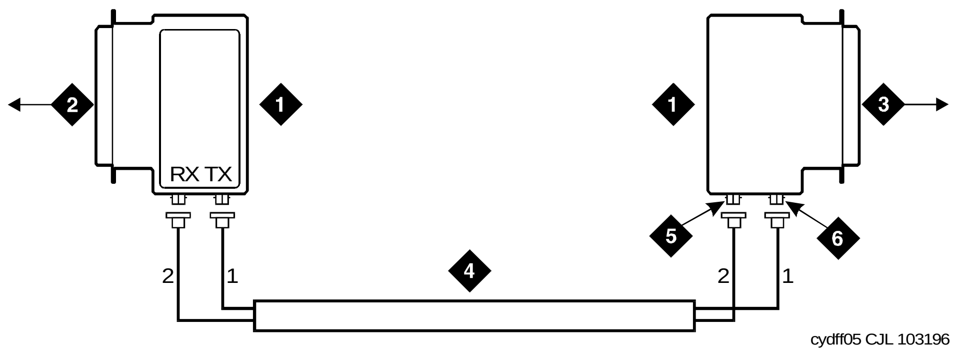


Figure Notes

1. Lightwave Transceiver
2. To PPN Carrier C Slot 1C02
3. To EPN 1 Carrier A Slot 2A01 (Cabinet Stack 2)
4. Fiber Optic Cable
5. TX Connector
6. RX Connector

Figure 3-10. Fiber Optic Connections PPN to EPN1

For 1 or 2 Fiber-Remoted Expansion Port Networks

1. Behind port carrier C of the multi-carrier PPN. See Figure 3-9 and Figure 3-11:
   a. Install a lightwave transceiver on the connector at slot 1C02.

      NOTE:
      Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

   b. Connect a fiber optic cable to the transceiver just installed.
   c. Route the fiber cable to the cabinet cable tray and out of the cabinet through the cable manager to the PDS cross-connect facility.
   d. Connect the fiber cable to the lightguide interface unit provided.
   e. Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.

2. Behind control cabinet A of EPN stack 2:

   a. Install a lightwave transceiver on the connector at slot 2A01.

      NOTE:
      Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

   b. Connect a fiber cable to the transceiver just installed.

   c. Route the fiber cable down the outside of the rear covers and through the cable manager to the PDS cross-connect facility.

   d. Connect the fiber cable to the lightguide interface unit provided.

   e. Carefully attach the fiber optic cable (with cable ties) to the rear covers of the EPN stack.

   f. Coil the surplus fiber optic cable and place it in the cable manager.

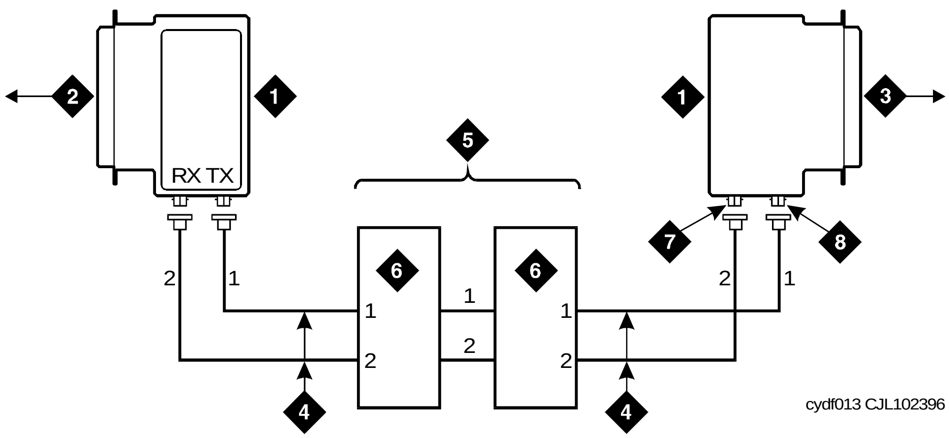


Figure Notes

1. Lightwave Transceiver
2. To PPN Carrier B Slot 1C02
3. To EPN 1 Carrier A Slot 2A01 (Cabinet Stack 2)
4. Fiber Optic Cable
5. Fiber Optic Cross-Connect Facility
6. Lightguide Interface Unit (LIU)
7. TX Connector
8. RX Connector

Figure 3-11. Fiber Optic Connections PPN to EPN1

Interconnect Port Networks with Fiber Cabling — Critical Reliability Release 6r

1. Keep track of which fiber attaches to which connector on each lightwave transceiver. This section provides figures showing typical ways of making these connections.

The connectors on the lightwave transceivers are labeled “TX” (transmit) or “RX” (receive), while the fibers attaching to each connector are numbered “1” or “2.”’ See Figure 3-13.

Collocated Port Networks

For a critical reliability system with 1 collocated expansion port network, use 2 fiber optic cables and 4 lightwave transceivers to directly connect the networks.

For a critical reliability system with 2 collocated expansion port networks, use 6 fiber optic cables and 12 lightwave transceivers to directly connect the networks.

NOTE:
Based on floor plan considerations, the length of these cables may vary. 20-foot (6.1 m) cables are normally adequate for a Release 6r with 2 port networks.

For collocated cabinets, route the fiber optic cables directly from the PPN to each EPN cabinet. Since a Release 6r PPN cabinet is collocated with a Single-Carrier Cabinet stack, the preferred routing is to run the cables *down* the cable tray and out the bottom of the PPN cabinet. The cables are then run to the EPN cabinet and up the outside of the rear panels to the desired carrier level.

Fiber-Remoted Port Networks

For a critical reliability system with 1 fiber-remoted EPN, use 4 fiber optic cables, 4 lightwave transceivers, and 4 lightguide interface units (provided by the PSC).

For a critical reliability system with 2 fiber-remoted EPN, use 12 fiber optic cables, 12 lightwave transceivers, and 12 lightguide interface units (provided by the PSC).

DS1 CONV-Remoted Port Networks

For a critical reliability system with 1 DS1 CONV-remoted EPN, this arrangement requires:

- Four DS1 CONV circuit packs (TN1654)
- Four DS1 CONV-to-EI cables (847245750 and/or 847245768)
- Four H-600-348 cables
- Two, 4, 6, or 8 pairs of channel service units (CSUs)
- Two, 4, 6, or 8 pairs of wall-field cables (provided with the CSUs)
- 5, 10, or 15 dB attenuators (single-mode fiber only).

5dB Attenuator	106060718
10dB Attenuator	106060734
15dB Attenuator	106061021

For a critical reliability system with 2 DS1 CONV-remoted EPNs, this arrangement requires:

- 12 DS1 CONV circuit packs (TN1654)
- 12 DS1 CONV-to-EI cables (847245750 and/or 847245768)
- 12 H-600-348 cables
- 6, 12, 18, or 24 pairs of CSUs
- 6, 12, 18, or 24 pairs of wall-field cables (provided with CSUs)
- 5, 10, or 15 dB attenuators (single-mode fiber only).

5dB Attenuator	106060718
10dB Attenuator	106060734
15dB Attenuator	106061021

For 1 or 2 Collocated Expansion Port Networks

1. Behind port carrier C of the multi-carrier PPN. See Figure 3-12 and Figure 3-13:
   a. Install a lightwave transceiver on the connector at slot 1C02.

      NOTE:
      Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

   b. Connect 1 end of the appropriate fiber optic cable to the lightwave transceiver just installed.

c. Route the fiber optic cable from the lightwave transceiver to the cabinet’s cable tray and down, out of the cabinet, to the EPN stack.

d. Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.

2. Behind port cabinet B of EPN stack 2:

   a. Install a lightwave transceiver on the connector at slot 2B02.

   NOTE:
   Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

   b. Connect the other end of the fiber optic cable coming from the PPN to the lightwave transceiver just installed.

   c. Carefully attach the fiber optic cable (with cable ties) to the rear covers of the EPN stack.

   d. Coil the surplus fiber cable and place it either in the cable manager or on the bottom shelf (holding the power supply) of the PPN cabinet.

3. Behind port carrier D of the multi-carrier PPN:

   a. Install a lightwave transceiver on the connector at slot 1D02.

   NOTE:
   Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

   b. Connect a fiber optic cable to the transceiver just installed.

   c. Route the fiber cable to the cabinet’s cable tray and down, out of the cabinet, to the EPN stack.

   d. Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.

4. Behind control cabinet A of EPN stack 2:

   a. Install a lightwave transceiver on the connector at slot 2A01.

   NOTE:
   Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

   b. Connect the other end of the fiber optic cable coming from the PPN to the lightwave transceiver at slot 2A01.

   c. Carefully attach the fiber optic cable (with cable ties) to the rear covers of the EPN stack.

   d. Coil the surplus fiber cable and place it in the cable manager or on the bottom shelf (holding the power supply) of the PPN cabinet.

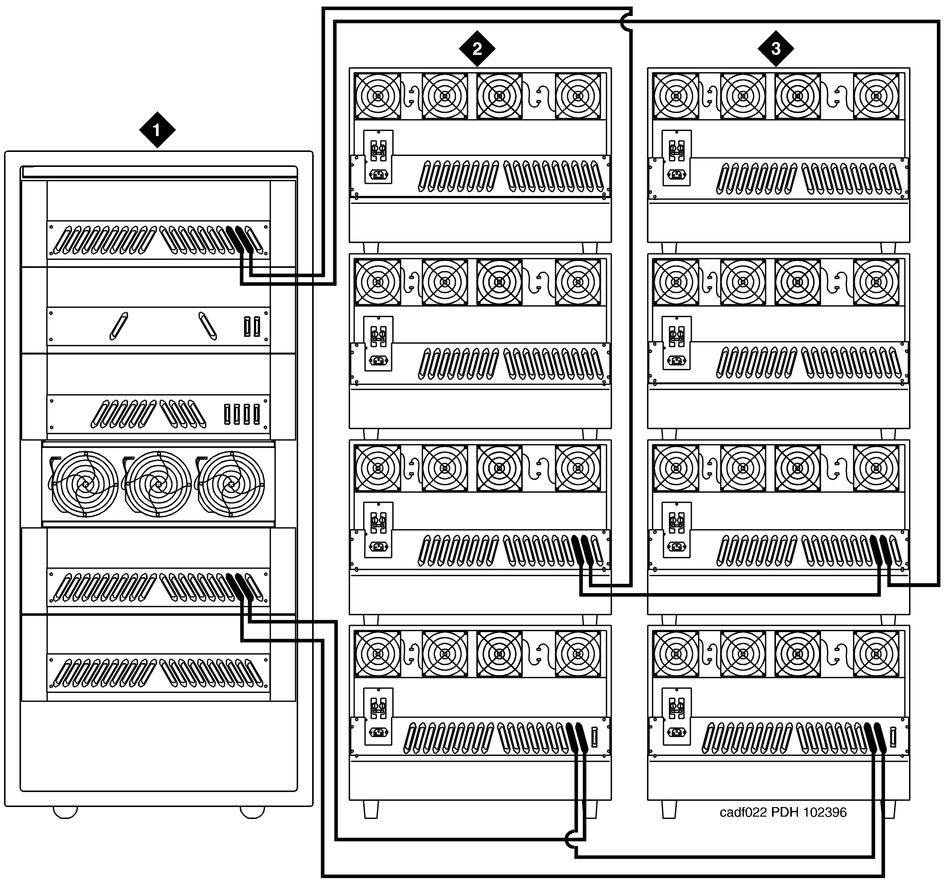


Figure Notes

1. Cabinet 1 PPN
2. Cabinet Stack 2 EPN 1
3. Cabinet Stack 3 EPN 2

Figure 3-12. Critical Reliability Release 6r with 2 or 3 Port Networks

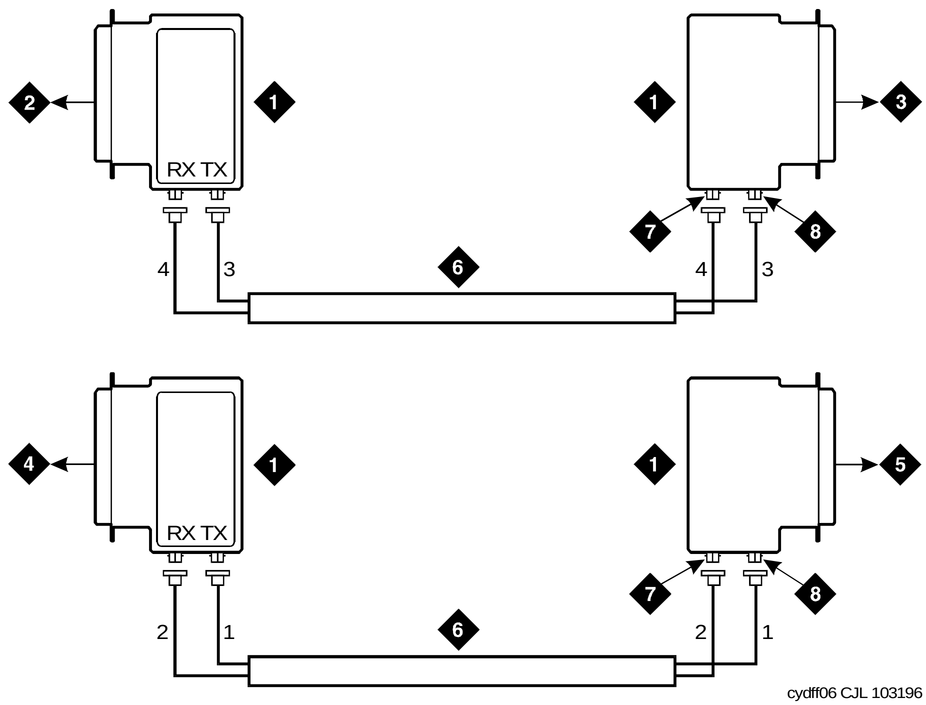


Figure Notes

1. Lightwave Transceiver
2. To PPN Carrier D Slot 1D02
3. To EPN 1 Carrier A Slot 2A01 (Cabinet Stack 2)
4. PPN Carrier C Slot 1C02
5. EPN1 Cabinet B Slot 2B02
6. Fiber Optic Cable
7. TX Connector
8. RX Connector

Figure 3-13. Fiber Optic Connections PPN to EPN1

Switch-Connected Port Networks

For 1 to 15 Standard Reliability EPNs.

1. Behind the PPN cabinet. See Figure 3-14:
   a. Install a lightwave transceiver on cable connector at slot 1E02.
   b. Install a lightwave transceiver on cable connector at slot 1B02.
   c. Connect 1 end of the metallic intercarrier cable to the lightwave transceiver at slot 1E02.
   d. Route the intercarrier cable from the lightwave transceiver to the cabinet cable tray and upward to carrier ‘‘B."
   e. Connect the other end of the intercarrier cable to the lightwave transceiver at slot 1B02.
   f. Attach the intercarrier cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
2. Behind switch node carrier E of PPN cabinet 1. See Figure 3-14:
   a. For each EPN, install 1 lightwave transceiver on a cable connector with the following order of slots: 1E20, 1E03, 1E19, 1E04, 1E18, 1E05, and so forth.
   b. Connect 1 end of each fiber optic cable to each lightwave transceiver, just installed.
   c. Carefully attach the fiber optic cables (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
3. Behind control cabinet A of each single-carrier EPN:
   a. Install a lightwave transceiver on cable connector at slot A01.
   b. Connect the other end of the fiber optic cable to the lightwave transceiver, just installed, at slot A01.
   c. Carefully attach the fiber optic cable (with cable ties) to the rear covers of the EPN stack.
   d. Coil up the surplus length of fiber optic cable, and place the coil either in the cable manager or on the bottom shelf (holding the power supply) of the PPN cabinet.

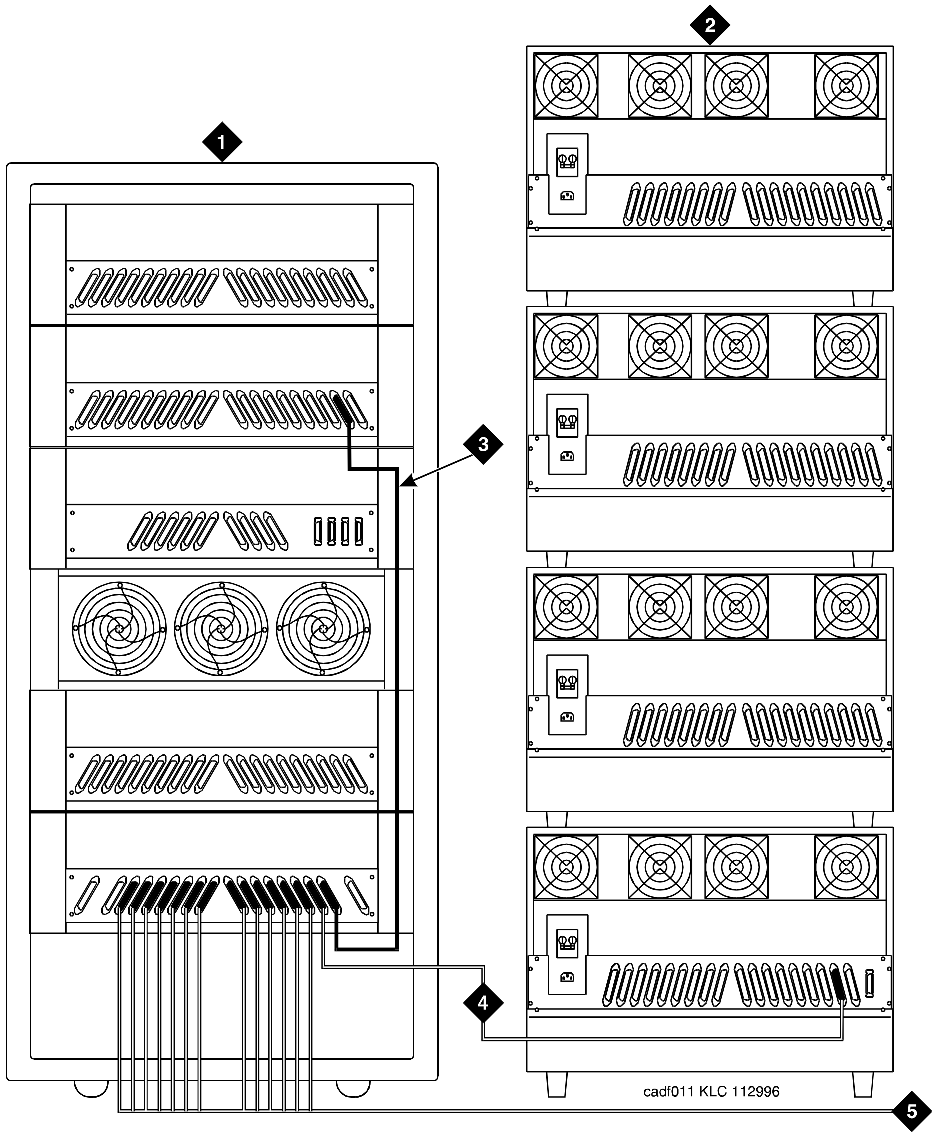


Figure Notes

1. Cabinet 1 PPN with 1 Switch Node
2. Cabinet Stack 2-16 EPN
3. Metallic Cable (H600-278)
4. Add Links to EPNs in Alternating Order (20, 3, 19, 4, 18, 5, and so forth)
5. To additional EPNs

Figure 3-14. Fiber Optic Connections Through Center Stage Switch

For 1 to 15 High Reliability EPNs.

1. Behind the PPN cabinet. See Figure 3-15:
   a. Install a lightwave transceiver on cable connector at slot 1E02.
   b. Install a lightwave transceiver on cable connector at slot 1C02.
   c. Connect 1 end of the metallic intercarrier cable to the lightwave transceiver at slot 1E02.
   d. Route the intercarrier cable from the lightwave transceiver to the cabinet's cable tray and upward to carrier ''C.''
   e. Connect the other end of the intercarrier cable to the lightwave transceiver at slot 1C02.
   f. Install a lightwave transceiver on cable connector at slot 1E20.
   g. Install a lightwave transceiver on cable connector at slot 1D02.
   h. Connect 1 end of the metallic intercarrier cable to the lightwave transceiver at slot 1E20.
   i. Route the intercarrier cable from the lightwave transceiver to the cabinet's cable tray and upward to carrier ''D.''
   j. Connect the other end of the intercarrier cable to the lightwave transceiver at slot 1D02.
   k. Attach the intercarrier cables (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
2. Behind switch node carrier E of PPN cabinet 1. See Figure 3-15:
   a. For each EPN, install 1 lightwave transceiver on a cable connector with the following order of slots: 1E03, 1E19, 1E04, 1E18, 1E05, 1E17, and so forth.
   b. Connect 1 end of each fiber optic cable to each lightwave transceiver, just installed.
   c. Carefully attach the fiber optic cables (with cable ties) to the wall of the cable tray at the built-in cable-tie positions.
   d. Behind control cabinet A of each single-carrier EPN:
   e. Install the same kind of lightwave transceiver on cable connector at slot A01.
   f. Connect the other end of the fiber optic cable to the lightwave transceiver, just installed, at slot A01.
   g. Coil the surplus length of fiber optic cable, and place the coil either in the cable manager or on the bottom shelf (holding the power supply) of the PPN cabinet.

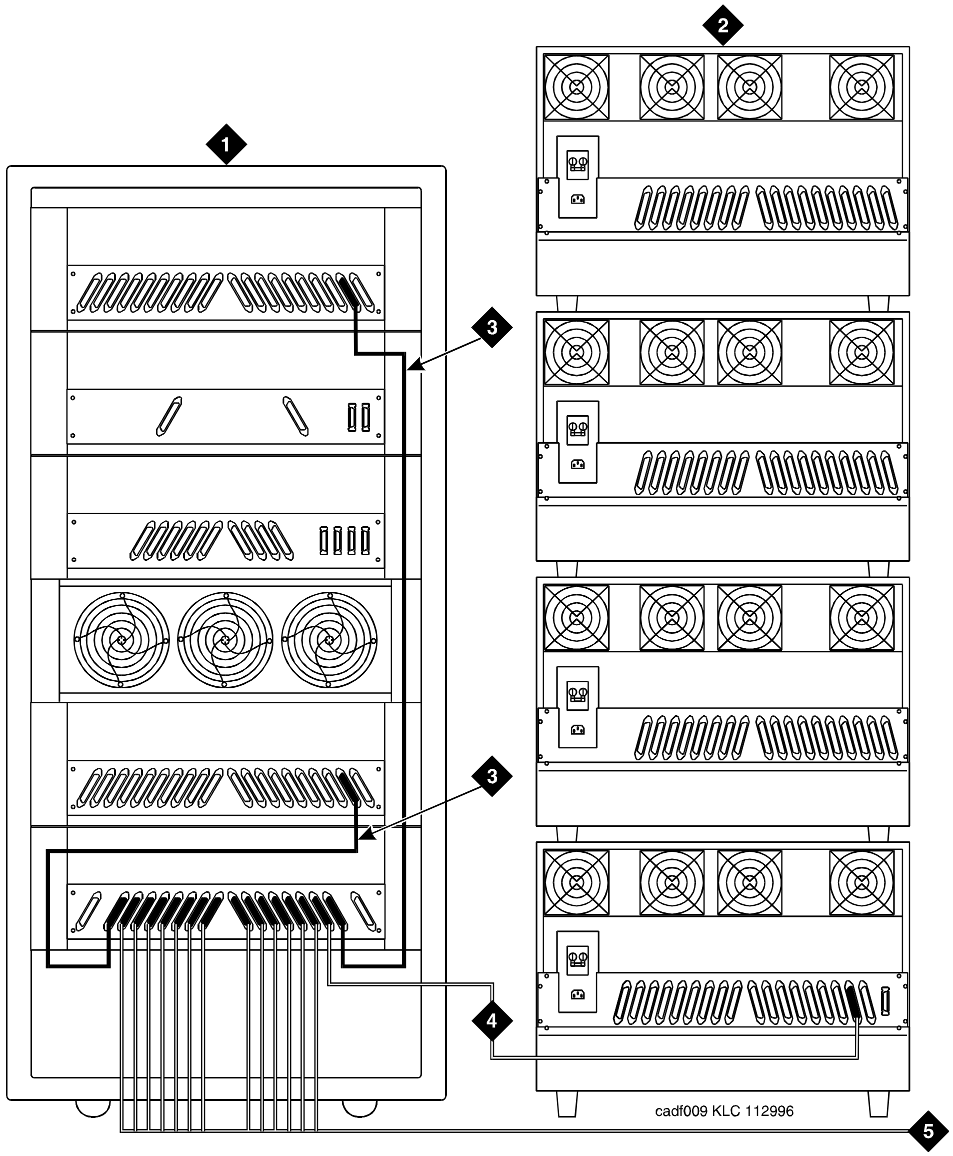


Figure Notes

1. Cabinet 1 PPN with 1 Switch Node
2. Cabinet Stack 2-16 EPN
3. H600-278 Metallic Cable
4. Add Links to EPNs in Alternating Order (3, 19, 4, 18, 5, 17, and so forth)
5. To Additional EPNs

Figure 3-15. Fiber Optic Connections Through Center Stage Switch

For 1 to 15 Critical Reliability EPNs.

1. Behind the PPN cabinet. See Figure 3-16:
   a. Install a lightwave transceiver on cable connector at slot 1E01.
   b. Install a lightwave transceiver on cable connector at slot 1E02.
   c. Connect the metallic intracarrier cable to the lightwave transceivers at slots 1E01 and 1E02.
   d. Install a lightwave transceiver on cable connector at slot 1D01.
   e. Install a lightwave transceiver on cable connector at slot 1D02.

      NOTE:
      Attenuators may be required for single mode fiber using a 300A Lightwave Transceivers

   f. Connect the metallic intracarrier cable to the lightwave transceivers at slots 1D01 and 1D02.
2. Behind switch node carrier E of PPN cabinet 1:
   a. For each EPN, install 1 lightwave transceiver on a cable connector with the following order of slots: 1E20, 1E03, 1E19, 1E04, 1E18, 1E05, and so forth.
   b. Connect 1 end of each fiber optic cable to each lightwave transceiver, just installed.
   c. Carefully attach the fiber optic cables (with cable ties) to the wall of the cable tray at the built-in cable-tie positions.
3. Behind control cabinet A of each single-carrier EPN:
   a. Install a lightwave transceiver on cable connector at slot A01.

      NOTE:
      Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

   b. Connect the other end of the fiber optic cable to the lightwave transceiver, just installed, at slot A01.
   c. Carefully attach the fiber optic cable (with cable ties) to the rear covers of the EPN stack.
   d. Coil the surplus length of fiber optic cable, and place the coil either in the cable manager or on the bottom shelf (holding the power supply) of the PPN cabinet.

4. Behind switch node carrier D of PPN cabinet 1:

   a. For each EPN, install 1 lightwave transceiver on a cable connector with the following order of slots: 1E20, 1E03, 1E19, 1E04, 1E18, 1E05, and so forth.

   b. Connect 1 end of each fiber optic cable to each lightwave transceiver, just installed.

   c. Carefully attach the fiber optic cables (with cable ties) to the wall of the cable tray at the built-in cable tie positions.

5. Behind port cabinet B of each single-carrier EPN:

   a. Install a lightwave transceiver on cable connector at slot B02.

      NOTE:
      Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

   b. Connect the other end of the fiber optic cable to the lightwave transceiver, just installed, at slot B02.

   c. Carefully attach the fiber optic cable (with cable ties) to the rear covers of the EPN stack.

   d. Coil up the surplus length of fiber optic cable, and place the coil either in the cable manager or on the bottom shelf (holding the power supply) of the PPN cabinet.

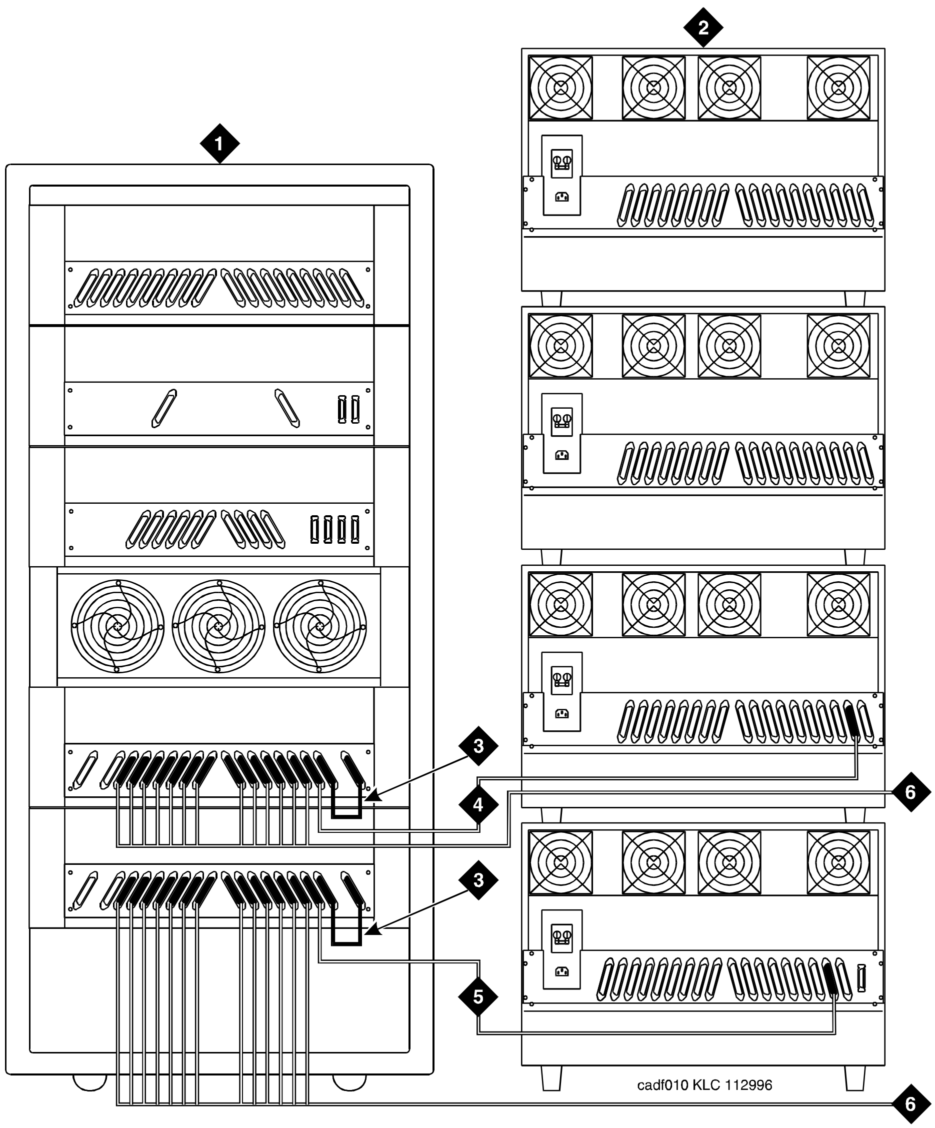


Figure Notes

1. Cabinet 1 with 1 Duplex Switch Node
2. Cabinet Stack 2-16 EPN
3. H600-278 Metallic Cable
4. Add Links to EPNs in Alternating Order (20, 3, 19, 4, 18, 5, and so forth)
5. Add Links to EPNs in Alternating Order (20, 3, 19, 4, 18, 5, and so forth)
6. To additional EPNs

Figure 3-16. Fiber Optic Connections Through Center Stage Switch

DS1 CONV-Remoted Cabinets

The distance between the DS1 facilities and associated equipment room hardware and cabling is a maximum of approximately 200 circuit miles (322 km) for analog voice and 500 circuit miles (805 km) for digital (no analog voice stations).

NOTE:
These limits for DS1 remoting is the maximum distance between *any* 2 port networks in a Release 6r system with either direct or switched port network connections with a TN1654 DS1 Converter Circuit pack.

Digital public network tie trunk facilities provide the end-to-end connectivity between the port networks. For either type of port network (PPN or EPN), a TN1654 DS1 Converter circuit pack serves as the port network interface to the DS1 facilities. As a PPN interface, a TN1654 DS1-CONV can reside in either:

- A port carrier (in any port slot)
- A switch-node carrier (in port slot “1” or “21”)

As an EPN interface, a TN1654 DS1 CONV can reside in an expansion control carrier (in any port slot).

DS1 Cabling within the Local Port Networks. Use the running list that accompanies the upgrade equipment to determine which cable connects where. The following paragraphs only provide conceptual information about wiring a DS1 Converter interface either to an expansion interface or to a switch node interface, not step-by-step procedures for wiring a specific Release 6r system.

NOTE:
It is important to label every cable installed.

A cable connects each DS1 CONV either to the appropriate TN570 expansion interface (for a direct connection to another port network) or to the appropriate TN573B SN Interface (for a switched connection to another port network).

NOTE:
These cables usually connect to TN570 expansion interfaces (already installed) for direct connections between the new PPN and either 1 or 2 EPNs.

On the DS1 CONV side, a 4C retainer binds this shielded cable to the DS1 CONV port connector. On the EI/SNI side, a 4B retainer binds the cable to the EI/SNI port connector. The DS1 CONV-to-EI/SNI cable also provides a piggy-back connector enabling subsequent access to the public network.

Table 3-5 lists the cable numbers and lengths for the possible connections.

Table 3-5. Numbers and Lengths of DS1 CONV-to-EI/SNI Cables

Connection Type	Comcode Number	Length
Within same carrier	847245750	1 foot
Between 2 carriers in same port network	846448768	5.5 feet
Between 2 carriers in adjacent networks	846448776, and one 846885259 bracket	1 foot (used with two 9823As, & one 20-foot fiber optic cable)

DS1 CONV Cabling to the Public Network. Use the running list that accompanies the upgrade equipment to determine which cable connects where. The following paragraphs only provide conceptual information about wiring a DS1 CONV interface to a wall-field block, not step-by-step procedures for wiring a specific Release 6r system.

If already connected to either an expansion or switch node interface, a DS1 CONV circuit pack already resides either in an EPN expansion control carrier or in a PPN port carrier or switch node carrier.

Depending on the traffic requirements between the 2 port networks, a 25-foot H600-348 cable extends from the piggy-back connector (on each DS1 CONV-to-EI/SNI cable) to from 1 to 4 CSUs. This cable branches to four 15-pin subminiature D-type connectors (labeled “01” to “04”) to make the CSU connections. Then, in turn, the CSUs connect to the wall-field block (corresponding to the equipment location of the DS1 CONV) at port connections “8,” “7,” “6,” and “5” (in descending order).

Neglecting overhead, this wiring arrangement can provide PN-to-PN communication at the bandwidth of up to 4 DS1 CONV spans (1.544 Mbps each). Between each port network’s wall field, the port networks communicate across leased lines in the public network.

Connect Power and Ground

1. Reconnect the 6 AWG (#40) (4.1 mm) cabinet ground wire to the single-point ground bar on the cabinet.
2. Reconnect the 10 AWG (#25) (2.6 mm) coupled bonding conductor wire.
3. Reconnect the cabinet power cords at the rear of each cabinet.

Verify Usable Circuit Pack Vintages

1. Verify every circuit pack reused in the upgrade conforms to the usable vintage requirements for a Release 6r system (see *Reference Guide for Circuit Pack Vintages and Change Notices*).

Install System Access Ports

1. Before connecting various endpoints that use EIA interfaces to the system, install up to 8 loop-around connections for Mode 2-to-Mode 3 (and vice versa) data conversion.

From the *outgoing* perspective of the system communicating with an EIA endpoint, these loop-around connections convert Mode 3 data (circuit-switched packet data, with undefined bit rates and packet specifications) to Mode 2 data (low-speed, usually asynchronous, data at rates of 300 to 19,200 bps) by:

- Accepting Mode 3 data off the LAN bus (from the SPE) at a TN553 Packet Data Line circuit pack, where Mode 3-to-Mode 2 conversion is done
- Routing the converted data through the cross-connect field and back to a TN726B Data Line where the equivalent Mode 2 data can access the TDM bus, for subsequent routing to an EIA endpoint

The endpoints that use these EIA interfaces and, therefore, require the Mode 2-to-Mode 3 conversion include:

- Generic 3 Management Applications (G3-MA)
- Remote Management Terminal
- Basic Call Management System (BCMS) terminal
- Call Detail Recording Unit (CDRU)/Centralized Attendant Service Plus (CAS+)
- Property Management System (PMS)
- Printers

Reseat DEFINITY LAN Gateway System

1. Reseat the DEFINITY LAN Gateway assembly into the backplane.

Reseat DEFINITY AUDIX System

1. Reseat the AUDIX assembly to its backplane connectors.

Remove Emergency Transfer Ground Wire

1. Remove the ground wire from the emergency transfer unit.

Reboot the System

1. Connect the management terminal to the TERMINAL connector on the rear of PPN control carrier "A," or install the G3-MA according to *DEFINITY Communications System Generic 3 Management Applications — Operations*, 585-229-202.
2. Insert the new Release 6r system tape in the tape drive.
3. Behind each EPN cabinet, set the circuit breaker to ON.
4. At the PPN power distribution unit, set the main circuit breaker to ON.
5. The system performs a reset level 4 rebooting process, loading blank translations from the disk. Rebooting takes 5 to 11 minutes.
6. Enter **reset system 4 tape**. Press Enter. This instructs the system to perform a reset level 4 rebooting process, loading the upgraded STS translations from the new tape. Rebooting takes 5 to 11 minutes.
7. Log in as **craft** at the `login:` prompt on the terminal and set the time to ensure the system is booted properly.
8. After about 2 minutes, enter **status spe**. The `standby handshake` field must be up before continuing with the upgrade.
9. Enter **reset spe standby 4**. This changes the standby SPE to active and vice versa. This takes about 10 minutes.
10. If the system is high or critical reliability, enter **status spe**. The `handshake`, `refresh`, and `shadowing` fields must be up before continuing with the upgrade. Also, the standby side must be `in-service`. The heartbeat on the standby SPE flashes yellow.
11. Enter **restore disk** [**spe-a** or **both**] **full**. Press Enter. This instructs the system to write the upgraded STS translation information from memory to the disk(s).

Restart DEFINITY LAN Gateway System

1. Log onto the DEFINITY LAN Gateway.
2. When the main menu appears, select *Maintenance*.
3. Select *Reset System* from the *Maintenance* menu.
4. Select *Restart System* from the *Reset System* menu.

Label Main Distribution Frame

1. Label the MDF with the new PN number of the Release 6r EPN. The STS software upgrade assigns the next PN number, after the highest numbered PN in the Release 5si system, to the upgraded EPN.

Reconnect Cables

1. Behind each EPN cabinet power supply, set the circuit breaker to OFF.

   NOTE:
   Powering down an EPN cabinet without powering down the PPN will set off alarms. However, these alarms should clear after power is restored to the EPN.

2. Replace all cables that were labeled and removed.
3. Install the top and bottom rear covers. Be sure the correct rear covers are installed on the new J58890N Expansion Control Cabinet. Do not use these rear covers on the port cabinets.

   NOTE:
   The rear covers for Release 6r control carriers may need 2 detents (1 for the TDM/LAN cable and another for the ICC cables). If the Release 5si was upgraded to a critical reliability Release 6r and the EPN was originally an R1V3, replace the lower rear cover of port cabinet "B" with a new cover (846307817) so the ICC cables and the new ground plate can be installed between cabinets "A" and "B."

Power Up the EPN Cabinet

1. Behind each EPN cabinet power supply, set the circuit breaker to ON. After about 40 seconds, EPN power and PPN/EPN communications return.
2. After power returns to the EPN and all trouble is cleared, verify the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal mode.

Install Rear Ground Plates (Systems with Earthquake Protection)

1. Loosen the 4 screws at the bottom of the top cabinet and at the top of the cabinet underneath the top cabinet. See Figure 3-17.
2. Align the mounting holes in the rear ground plate over the bottom screws in the top cabinet. See Figure 3-17.
3. Align the mounting holes in the ground plate with the 4 holes at the top of the cabinet below the top cabinet. Slide the mounting plate down to seat on the screws.
4. Check all TDM bus cables and the ICC to be sure they are not pinched by the plates.
5. Repeat Steps 1-3 until the rear ground plates are installed between all stacked cabinets.
6. Do not tighten the screws yet.

Install Front Ground Plates (Systems with Earthquake Protection)

Use 1 front ground plate between 2 *stacked* cabinets.

1. At the front of the cabinets, align the holes in the top of the front ground plate with the holes at the bottom of the upper cabinet, and insert the 4 screws. Do not tighten the screws yet. See Figure 3-17.
2. At the front of the cabinets, align the holes in the bottom of the front ground plate with the holes at the top of the lower cabinet. Insert the 4 supplied #12-24 x 1/2-inch (1.27 cm) thread-forming screws. Do not tighten the screws yet.
3. Repeat Steps 1 and 2 until all stacked cabinets are fastened together.
4. Tighten all screws securely.

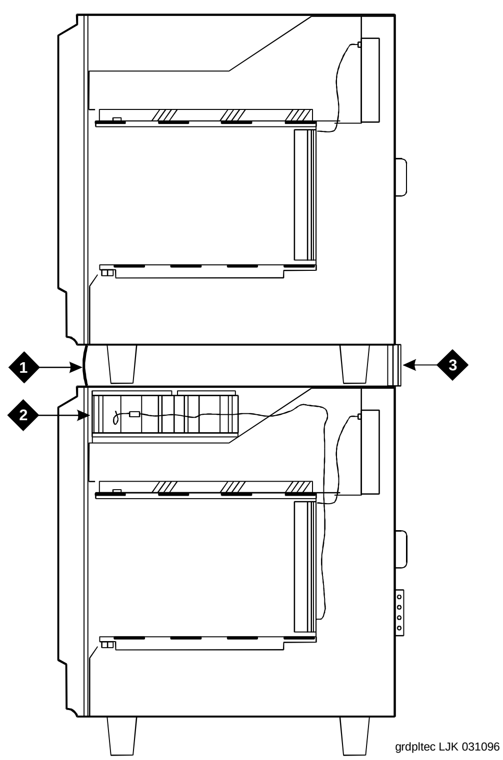


Figure Notes

1. Front Ground Plate or Cabinet Clip
2. Battery
3. Rear Ground Plate

Figure 3-17. Rear Ground Plate and Front Plate or Cabinet Clip — Side View

Install Cabinet Clips (Systems without Earthquake Protection)

A cabinet clip is required between each pair of stacked cabinets.

1. At the front of the cabinets, install a cabinet clip between each pair of cabinets by hooking the clip into the slot of the upper cabinet and snapping the straight leg of the clip into the slot on the lower cabinet. See Figure 3-18.

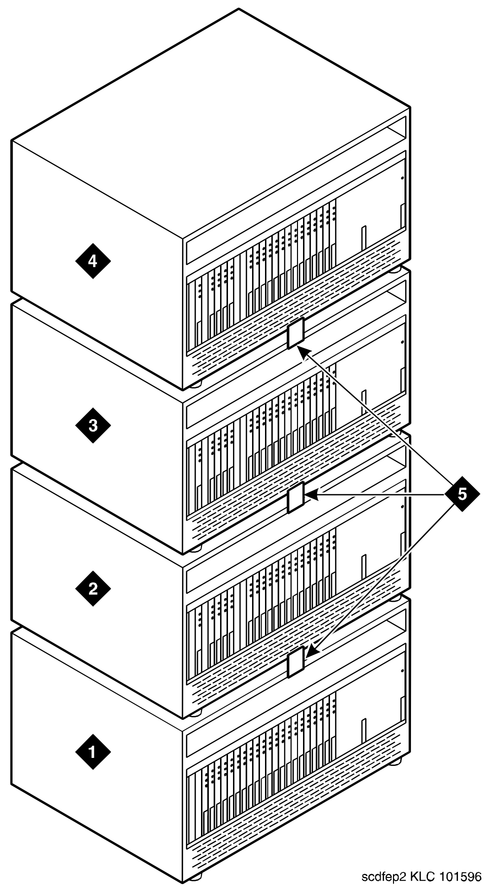


Figure Notes

1. Control Cabinet
2. Port Cabinet or Expansion Control Cabinet
3. Port Cabinet
4. Port Cabinet
5. Cabinet Clips

Figure 3-18. Location of Cabinet Clips

Install Cable Clamps

1. Behind the cabinets, using screws provided, install 2 cable clamps on each ground plate. See Figure 3-19. These clamps hold the port cables.

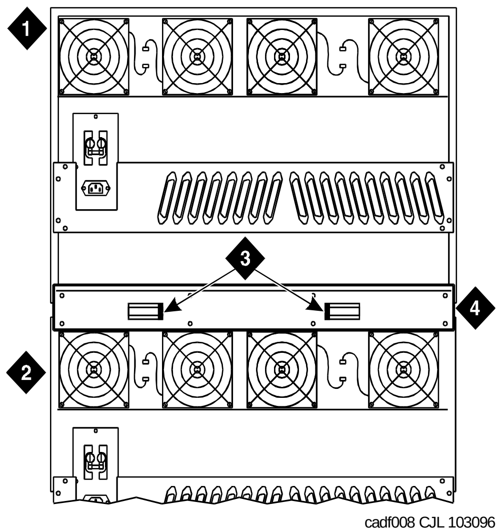


Figure Notes

1. Port Cabinet
2. Control Cabinet
3. Cable Clamps
4. Ground Plate

Figure 3-19. Location of Ground Plate and Cable Clamps

Retranslate Port Circuits

If port circuit packs in the Release 5si control cabinet were relocated in order to:

- Use a TN748B to replace the tone detector circuits on a TN756
- Put a critical port circuit pack, requiring longer nominal battery holdover (a DS1 or an Announcement circuit pack), in a port slot
- Put a TN570 EI circuit pack in port slot 1 or port slot 2 (for a second EPN)
- Put a TN755B power supply in port slots 16 and 17

1. Verify the port circuit packs were retranslated during the off-site software upgrade. If not, retranslate them now. Refer to *DEFINITY Enterprise Communications Server Release 6 Administration and Feature Description*.

Re-record Announcements (TN750/B Only)

1. The off-site STS translation upgrade does not preserve the contents of recorded announcements. Therefore, if a TN750/B Announcement circuit pack resides in the system, re-record the announcements that were stored on the circuit pack.

   NOTE:
   If a TN750C resides in the system, re-recording of announcements is not necessary.

Administer Fiber Links

1. After all fiber optic equipment is installed, refer to Chapter A, ‘‘Fiber Link Administration’’.

Resolve Alarms

1. Examine the alarm log. Resolve any alarms using *DEFINITY Enterprise Communications Server Release 6 Maintenance for R6r*.

Enable Customer Options and Alarm Origination

1. Get the DOSS order number of the upgrade and call the regional CSA to request an “init” login. The CSA assigns the V6 option, which automatically sets the 24-hour password aging for the customer logins.
2. Enter **change system-parameters customer-options** and press Enter.
3. Use these forms to verify the customer options are properly set.

   NOTE:
   If the customer was using Supplementary Services Protocol “d” on an ISDN-PRI trunk group before the upgrade, set the `Basic Call Setup` field to **y**.

4. Set the `Offer Category` field to **A**.
5. Set the `Activate Offer` field to **y** and press Enter.
6. Be sure the system is part of the existing INADS database by calling the INADS Database Administrator at the Technical Service Center (TSC). Verify that INADS can dial into the system and that the system can dial out to INADS.

   As part of the system registration process, the INADS Database Administrator enables Alarm Origination and customer options.

7. Logoff and log back in as **craft**.

Save Translations

1. Enter **save translation** and press Enter to get upgraded translations onto disk. If the translations were corrupted during the upgrade, the following error message displays when logging in:

   WARNING:
   Translation corruption detected; call Lucent Technologies distributor immediately.

   NOTE:
   The **save translation** command cannot function if the translation corruption message appears.

Return Replaced Equipment

1. Return replaced equipment to Lucent Technologies according to the requirements outlined in:

   BCS/Material Logistics, MSL/Attended Stocking Locations

   Methods and Procedures for Basic Material Returns

DEFINITY AUDIX Power Procedures

Power Down the AUDIX System

A yellow caution sticker on the system's power unit notifies technicians to shut down the DEFINITY AUDIX System prior to powering down the system.

1. Log into the AUDIX System as **craft**.
2. Enter the **reset system shutdown** command. Press Enter *once*.

   NOTE:
   Do not press Enter again. This will force the AUDIX to shutdown immediately, dropping all active calls on the AUDIX.

3. The "SHUTDOWN Completed" message appears when the AUDIX is successfully shutdown. This takes about 2 minutes.
4. The AUDIX System can now be removed for service.

Power Up the AUDIX System

- If the AUDIX was removed from the cabinet:
  1. Re-install the AUDIX and allow it to boot up automatically.
  2. Check for AUDIX System errors.
- If the AUDIX remained in the cabinet but power was removed from the cabinet:
  1. Power up the cabinet. The AUDIX reboots automatically.
  2. Check for AUDIX System errors.
- If the AUDIX remained in the cabinet and the cabinet was *not* powered down:
  1. At the AUDIX console, hold the crtl key and enter **cc**.
  2. Enter **5** at the prompt. In about 2 minutes, the AUDIX boots up.
  3. When the system initialization is complete, log in as **craft**.
  4. Check for AUDIX System errors.

Intel 386 or RISC Processor to Release 6r

4

This chapter provides the information necessary to perform an upgrade from either a Release 5 system with a RISC Processor, or from a Generic 3 (G3) system with an Intel® 386 processor, to a Release 6r system.

The upgrade to a Release 6r system requires a major change of hardware and software. The port circuit packs from the present system may be reused only if a site inspection determines that the port circuit pack vintages are usable in the Release 6r.

Some of the I/O cables from the existing system may be too short to reach from the Release 6r cabinet to the Main Distribution Frame (MDF). If so, the cables must be replaced as part of the upgrade process.

Task Tables

Table 4-1 provides the high-level tasks to perform the upgrade in this chapter.

Table 4-1. Tasks to Upgrade to Release 6r

√	Task Description	Page
	Software Upgrade	4-5
	Save Translations and Announcements	4-6
	Disable Alarm Origination to INADS	4-6
	Shut Down DEFINITY LAN Gateway System	4-7
	Shut Down DEFINITY AUDIX System	4-7
	Power Down Present System	4-7
	Install Emergency Transfer Ground Wire	4-8
	Remove the Present System	4-8
	Unpack and Install the Release 6r Cabinet	4-9
	Remove Emergency Transfer Ground Wire	4-9
	Power-Up the Release 6r	4-9
	List Configuration Software Long	4-9
	Restore Disk Full	4-10
	Re-Record Announcements (TN750/B)	4-10
	Copy Announcements to Release 6 Tape (TN750/B)	4-10
	Install Remaining Hardware and Administer the System	4-11
	Enable Scheduled Maintenance	4-11
	Resolve Alarms	4-11
	Enable Customer Options and Alarm Origination	4-11
	Save Translations	4-12
	Back Up Disk	4-12
	Return Replaced Equipment	4-12

Read This First

Service Interruption

This upgrade process requires a service interruption that depends on whether the Release 6r cabinet can be installed while the present system is in service. In this case, the service interruption may only be about 2 hours. If, however, the present system must be removed to allow room for the Release 6r cabinet, then the service interruption may be 8 hours, or more.

This upgrade must be closely coordinated with the customer and the local account team.

Call Management System (CMS)

The CMS link is dropped and restarted during the upgrade. This causes CMS data to be lost. This data loss can be minimized if the upgrade is performed just after the last CMS measurement interval.

All measurement data is lost during the upgrade (including BCMS). If needed, the reports may be printed before the upgrade begins.

CMS could abort the processing of a call if a measured trunk that was part of the conference dropped off the call before the end of the call. Customers experiencing this symptom and who are running R3V4 CMS should update to r3v4ao.e or higher.

Preventing Translation Errors

When instructed in this chapter, perform the **save translation** command. Afterward, check for translation errors before proceeding with the upgrade.

NOTE:
Be sure that the translations get saved without errors before continuing with any upgrade.

If errors are detected, refer to ''No Translations After Upgrade'' in Appendix B, ''Troubleshooting Upgrade Problems'' to correct the problem. Do not continue with the upgrade until the errors are corrected.

Communication Between Equipment Rooms

For an upgrade where some of the equipment resides at a remote location, the upgrade activity is much easier if temporary communication is established between the equipment rooms.

Usable Circuit Packs

Every circuit pack used in the Release 6 system must conform to the minimum usable vintage requirements for that system. At a presale site inspection, the QPPCN process checks the vintages of existing circuit packs to be reused in the Release 6 system. Circuit packs with unusable vintages must be replaced.

Refer to *Technical Quarterly*, *Reference Guide for Circuit Pack Vintages, Change Notices,* and to the *Software Release Letter*, for information about usable circuit pack vintages. For information about usable vintages of non-United States circuit packs, refer to the ITAC's Tech Alert from your regional distributor.

Contact Network Technicians

Contact the technician for each public and private network accessed by the system before the upgrade begins. Otherwise, it is possible that network-access trunk facilities will be busied out at the far end.

Required Tools

The following tools and items may be required during the upgrade:

- 1/4-inch flat blade screwdriver
- 1/4-inch socket with ratchet (optional)
- Long-nose pliers to straighten backplane pins
- Static-proof or original circuit pack packaging for transporting circuit packs
- Labels for identifying the port circuit packs and cables attached to the rear of cabinets
- One dozen #8 self-tapping screws
- Repair kit for backplane pins (KS-22876 L2 or equivalent)
- One copy of each of the following manuals:
  - *DEFINITY Enterprise Communications Server Release 6 Maintenance for R6r*
  - *DEFINITY Enterprise Communications Server Release 6 Administration and Feature Description*

Preliminary Procedures

Software Upgrade

For this upgrade, a Translation Upgrade Tool (TUT) is required. The translations on the translation card must be copied to tape. This procedure must be performed before the upgrade begins.

1. Copy the translations in the present system to a spare translation card. Enter **save translation** and press Enter. This instructs the system to write all translation information from memory to the translation card.

   NOTE:
   The off-site STS translation upgrade does not preserve the content of recorded announcements. Therefore, during the upgrade, any announcements stored on a TN750/B circuit pack must be re-recorded. The TN750C Announcement circuit pack stores announcements in non-volatile memory; saving the announcements is not needed.

2. Mail the translation card to Software Technical Support (STS) (with next-day delivery) to be converted and written to a Release 6r tape. This process takes several days. The new Release 6r software tapes (including 1 with translations) must be on-site before the upgrade begins. For each Release 6r processor, 2 tapes (1 system tape and 1 backup tape) must always be retained on site with the system.
3. Insert the original translation card back into the present system.
4. If possible, the customer should put a freeze on any new translations while the spare tape is being converted. If not, be sure the customer's switch administrator keeps detailed records of any translation changes made during that interval. These records will facilitate the reassignment of any changes on the Release 6r tapes after the upgrade.

Follow Routine Preventive Maintenance

During the upgrade, follow routine preventive maintenance procedures on the system to be upgraded. For information about the procedures and necessary equipment, refer to the "Preventive Maintenance" section in *DEFINITY Enterprise Communications Server Release 6 Maintenance for R6r*.

Remove the Present System

- If the equipment room is large enough to allow the Release 6r cabinet to be installed while the present system is in service, skip to "Install the Release 6r Cabinet" on page 4-9. Return to this section when finished.
- If the present system must be removed to make room for the Release 6r cabinet, perform the following.

Save Translations and Announcements

1. Log in at the management terminal on the present system.
2. Enter **save translation**. Press Enter. This command instructs the system to write all translation information from memory to the translation card.
3. Check for translation errors before proceeding with the upgrade. If errors are detected, refer to "No Translations After Upgrade" in Appendix B, "Troubleshooting Upgrade Problems" to correct the problem. Do not continue with the upgrade until the errors are corrected.
4. If the system contains a TN750/B Announcement circuit pack, enter **display announcements** and press Enter.

   NOTE:
   The TN750C Announcement circuit pack contains non-volatile memory and does not require backup.

5. If administered recorded announcements are listed, enter **save announcements** and press Enter.
6. Remove the translation card and install the backup translation card.

Disable Alarm Origination to INADS

1. Enter **change system-parameters maintenance** and press Enter.
2. Enter **neither** in the `Alarm Origination to OSS Numbers` field and press Enter.
3. For some releases of software, disable `Cleared Alarm Notification` and `Restart Notification` before submitting the form.

   CAUTION:
   If Alarm Origination is not disabled, the system may generate alarms, resulting in unnecessary trouble tickets.

Shut Down DEFINITY LAN Gateway System

WARNING:
Neglecting to shut down a DEFINITY LAN Gateway assembly before powering down the system cabinet can damage the LAN Gateway disk.

1. Log onto the DEFINITY LAN Gateway. See *DEFINITY Communications System Generic 3 Installation, Administration and Maintenance of CallVisor ASAI over the DEFINITY LAN Gateway*, 555-230-223, for the procedure to log on.
2. When the main menu appears, select *Maintenance*.
3. Select *Reset System* from the *Maintenance* menu.
4. Select *Shutdown* from the *Reset System* menu.
5. Unseat the LAN Gateway assembly from its backplane connectors.

Shut Down DEFINITY AUDIX System

WARNING:
Neglecting to shut down an AUDIX assembly before powering down the system cabinet where it resides can damage the AUDIX disk.

1. If a DEFINITY AUDIX System resides in the system to be upgraded, shut down the AUDIX assembly and allow the disk to completely spin down. Refer to ''DEFINITY AUDIX Power Procedures'' on page 4-13.
2. Unseat the AUDIX assembly from its backplane connectors.

Power Down Present System

CAUTION:
Powering down the PPN will cause important system data, such as BCMS data, records of queued ACD calls, Automatic Wakeup requests, and Do Not Disturb requests to be lost. Refer to DEFINITY Enterprise Communications Server Release 6 Maintenance for R6r, for information about preparing the system for a power down.

1. At the PPN cabinet power supply, set the main circuit breaker to OFF.

Install Emergency Transfer Ground Wire

> **CAUTION:**
> *To avoid contaminating single-point ground, do not connect the ground strap while the system is powered up.*

1. Connect a 10 AWG (#25) (2.6 mm) wire either to pin 49 of the connecting block or to pin 49 of the CAP (cable access panel) associated with the emergency transfer panel.
2. Route the other end of the wire to an approved ground and connect.

Disconnect Power and Ground

1. Disconnect the cabinet power cords from the rear of the cabinet.
2. Disconnect the 10 AWG (#25) (2.6 mm) coupled bonding conductor wire.
3. Disconnect the 6 AWG (#40) (4.1 mm) CABINET GROUND wire from the ground bar in the cabinet.

Remove the Present System

1. Disconnect the management terminal from the TERM connector.
2. Remove all of the 25-pair cables from the rear of the system. Retain any cables that can be reused with the Release 6r cabinet.
3. Remove the AC power cord from the system.
4. Remove the ground wires from the system. If the wires can reach the Release 6r cabinet, retain them for connection to the Release 6r system.

Install the Release 6r Cabinet

Unpack and Install the Release 6r Cabinet

1. Refer to the installation instructions in *DEFINITY Enterprise Communications Server Release 6 Installation and Test for Multi-Carrier Cabinets*.

   CAUTION:
   Do not power up the Release 6r system.

2. Return to this section when the installation of the Release 6r is completed.

Remove Emergency Transfer Ground Wire

1. If the Release 6r is being installed while the present system is in service:
   a. Connect a 10 AWG (#25) (2.6 mm) wire either to pin 49 of the connecting block or to pin 49 of the CAP (cable access panel) associated with the emergency transfer panel.
   b. Route the other end of the wire to an approved ground and connect.
2. If the present system was removed to make room for the Release 6r cabinet:
   a. Disconnect the 10 AWG (#25) (2.6 mm) wire (installed earlier) from the connecting block or pin 49 of the CAP (cable access panel).

Power-Up the Release 6r

1. Insert the new Release 6r software tape into the tape drive.
2. Power up the Release 6r cabinet and allow the system to boot up completely.

List Configuration Software Long

1. Enter **list configuration software long** and press Enter to verify the tape contains the required Release 6 software.
2. Make note of the entire alphanumeric string of the software version. This information is used later.

Restore Disk Full

1. Enter **restore disk full** and press Enter. This instructs the system to copy the entire tape to disk and takes about 30 minutes to complete. Release 6 system software with translations are now resident on the disk.

   NOTE:
   Until this command finishes, the system provides no user feedback on the management terminal. Do not press Enter while the command executes. Doing so causes the terminal screen to clear as the command finishes, erasing any success/failure messages the system may provide.

2. Enter **upgrade software G3v6r.xx.x.xxx.x** `<entire alphanumeric string of target software version>` and press Enter. This takes about 15 minutes to complete. For Release 5, this is call preserving.
3. Login as **craft** at the `login:` prompt.
4. Enter **set time** and press Enter. Set the system time and date.

Re-Record Announcements (TN750/B)

1. Refer to *DEFINITY Enterprise Communications Server Release 6 Administration and Feature Description* to record announcements.

   NOTE:
   The TN750C Announcement circuit pack stores announcements in non-volatile memory; re-recording the announcements is not needed.

Copy Announcements to Release 6 Tape (TN750/B)

1. If the system contains a TN750/B Announcement circuit pack, enter **display announcements** and press Enter.
2. If administered recorded announcements are listed, enter **copy announce tape** and press Enter.

   NOTE:
   The TN750C Announcement circuit pack stores announcements in non-volatile memory; saving the announcements is not needed.

Upgrade Completion

Install Remaining Hardware and Administer the System

1. If the present system was removed to make room for the Release 6r cabinet, skip to Step 3.
2. If the Release 6r cabinet was installed while the present system is in service, return to ''Remove the Present System'' on page 4-6. Return to this section when finished.
3. Connect all new and reusable I/O cables to the Release 6r cabinet. Cross-connect at the MDF as required.
4. Remove all reusable circuit packs from the present system and install into the Release 6r cabinet. Install any new circuit packs into the Release 6r cabinet.
5. Install fiber optic cables and administer the fiber links as needed. Refer to *DEFINITY Enterprise Communications Server Release 6 Installation and Test for Multi-Carrier Cabinets*.
6. Administer any new translations, as required.

Enable Scheduled Maintenance

1. Enter **change system-parameters maintenance** and press Enter. Use this form to enable scheduled daily maintenance.

Resolve Alarms

1. Examine the alarm log. Resolve any alarms using *DEFINITY Enterprise Communications Server Release 6 Maintenance for R6r*.

Enable Customer Options and Alarm Origination

1. Get the DOSS order number of the upgrade and call the regional CSA to request an "init" login. The CSA assigns the V6 option, which automatically sets the 24-hour password aging for the customer logins.
2. Enter **change system-parameters customer-options** and press Enter.
3. Use these forms to verify the customer options are properly set.

   NOTE:
   If the customer was using Supplementary Services Protocol "d" on an ISDN-PRI trunk group before the upgrade, set the `Basic Call Setup` field to **y**.

4. Set the `Offer Category` field to **A**.
5. Set the `Activate Offer` field to **y** and press Enter.
6. Be sure the system is part of the existing INADS database by calling the INADS Database Administrator at the Technical Service Center (TSC). Verify that INADS can dial into the system and that the system can dial out to INADS.

   As part of the system registration process, the INADS Database Administrator enables Alarm Origination and customer options.
7. Logoff and log back in as **craft**.

Save Translations

1. Enter **save translation** and press Enter to get upgraded translations onto disk. If the translations were corrupted during the upgrade, the following error message displays when logging in:

   WARNING:
   Translation corruption detected; call Lucent Technologies distributor immediately.

   NOTE:
   The **save translation** command cannot function if the translation corruption message appears.

Back Up Disk

1. Enter **backup disk** and press Enter to backup all changed files.
2. Enter **test stored-data long** and press Enter. This instructs the system to verify the consistency of the MSS files (on the disk and tape).

Return Replaced Equipment

1. Return replaced equipment to Lucent Technologies according to the requirements outlined in:

   BCS/Material Logistics, MSL/Attended Stocking Locations

   Methods and Procedures for Basic Material Returns

DEFINITY AUDIX Power Procedures

Power Down the AUDIX System

A yellow caution sticker on the system's power unit notifies technicians to shut down the DEFINITY AUDIX System prior to powering down the system.

1. Log into the AUDIX System as **craft**.
2. Enter the **reset system shutdown** command. Press Enter *once*.

   NOTE:
   Do not press Enter again. This will force the AUDIX to shutdown immediately, dropping all active calls on the AUDIX.

3. The "SHUTDOWN Completed" message appears when the AUDIX is successfully shutdown. This takes about 2 minutes.
4. The AUDIX System can now be removed for service.

Power Up the AUDIX System

- If the AUDIX was removed from the cabinet:
  1. Re-install the AUDIX and allow it to boot up automatically.
  2. Check for AUDIX System errors.
- If the AUDIX remained in the cabinet but power was removed from the cabinet:
  1. Power up the cabinet. The AUDIX reboots automatically.
  2. Check for AUDIX System errors.
- If the AUDIX remained in the cabinet and the cabinet was *not* powered down:
  1. At the AUDIX console, hold the crtl key and enter **cc**.
  2. Enter **5** at the prompt. In about 2 minutes, the AUDIX boots up.
  3. When the system initialization is complete, log in as **craft**.
  4. Check for AUDIX System errors.

Multi-Carrier G2 Universal Module to Release 6si EPN

5

This chapter provides the information necessary to upgrade a DEFINITY G2 universal module to a multi-carrier EPN of a R6si system.

DEFINITY Enterprise Communications Server Release 6 Administration and Feature Description lists Release 6 features and functions, and provides the commands, procedures, and forms to initialize and administer the system.

Single-Mode Fiber Attenuators

Attenuators may be required when using single-mode fiber. See the table below.

106060718	5 dB attenuator	2 for each fiber connection
106060734	10 dB attenuator	2 for each fiber connection
106061021	15 dB attenuator	2 for each fiber connection

A different value attenuator may be required even though the fiber span is between the same 2 cabinets (local and remote cabinet). Refer to *DEFINITY Enterprise Communications Server Release 6 Installation and Test for Multi-Carrier Cabinets* for detailed fiber attenuator information.

Task Tables

Table 5-1, Table 5-2, and Table 5-3 provide the high-level tasks to perform the upgrades detailed in this chapter. Refer to the appropriate page for detailed instructions for each step.

Table 5-1. Tasks to Upgrade to Release 6si — Standard Reliability

Table 5-2. Tasks to Upgrade to Release 6si — High Reliability

✓	Task Description	Page
	Follow Routine Preventive Maintenance	5-37
	Label Cables	5-37
	Power Down G2 System	5-37
	Install Power-Failure Transfer Ground Wire	5-38
	Disconnect Cables	5-38
	Remove Circuit Packs from Module Control Carrier A	5-38
	Remove CURL from Module Control Carrier A	5-38
	Remove Module Control Carrier A	5-39
	Unpack and Inspect Expansion Control Carrier	5-43
	Install New Expansion Control Carrier A	5-43
	Install Circuit Packs	5-47
	Interconnect Port Networks — High Reliability	5-48
	Verify Usable Circuit Pack Vintages	5-59
	Remove Power-Failure Ground Wire	5-59
	Boot the Release 6 System	5-60
	Reconnect Cables	5-61
	Power Up the EPN Cabinets	5-61
	Retranslate Port Circuits	5-61
	Enable TTI	5-62
	Enable Scheduled Maintenance	5-62
	Resolve Alarms	5-62
	Enable Customer Options and Alarm Origination	5-62
	Save Translations	5-63
	Back Up Disk	5-63

Table 5-3. Tasks to Upgrade to Release 6si — Critical Reliability

Read This First

Service Interruption

The upgrade process requires a service interruption of about 40 minutes. Coordinate this service interruption with the customer and the local account team.

Call Management System (CMS)

The CMS link is dropped and restarted during the upgrade. This causes CMS data to be lost. This data loss can be minimized if the upgrade is performed just after the last CMS measurement interval.

All measurement data is lost during the upgrade (including BCMS). If needed, the reports may be printed before the upgrade begins.

CMS could abort the processing of a call if a measured trunk that was part of the conference dropped off the call before the end of the call. Customers experiencing this symptom and who are running R3V4 CMS should update to r3v4ao.e or higher.

Preventing Translation Errors

When instructed in this chapter, perform the **save translation** command. Afterward, check for translation errors before proceeding with the upgrade.

NOTE:
Be sure that the translations get saved without errors before continuing with any upgrade.

If errors are detected, refer to ''No Translations After Upgrade'' in Appendix B, ''Troubleshooting Upgrade Problems'' to correct the problem. Do not continue with the upgrade until the errors are corrected.

Contact Network Technicians

Contact the technician for each public and private network accessed by the system before the upgrade begins. Otherwise, if these technicians are not aware of the service interruption caused by the upgrade, it is possible that network-access trunk facilities will be busied out at the far end.

Communication Between Equipment Rooms

For an upgrade where some of the equipment resides at a remote location, the upgrade activity is much easier if temporary communication is established between the equipment rooms.

Relocation of Port Circuit Packs

An upgrade to Release 6 *does not* cause G2 port circuit packs to be moved and manually retranslated. This is because a G2 universal module is always upgraded to an EPN. So, during the upgrade, a Release 6 expansion control carrier (with 18 available port slots) always replaces the G2 module control carrier (with no port slots), providing a net gain of 18 port slots.

Usable Circuit Packs

Each circuit pack used in the upgraded Release 6 system must conform to the minimum usable vintage requirements for Release 6. Those circuit packs shipped in the new Release 6 PPN or shipped loose with the new EPN equipment should always meet the usable vintage specifications. In addition, at a presale site inspection, the Quality Protection Plan Change Notice (QPPCN) process must check the vintages of every G2 circuit pack (including any CFY1 current limiters) that will be reused in the upgraded Release 6 and replace those circuit packs that have unusable vintages. Refer to *Technical Monthly*, “Reference Guide for Circuit Pack Vintages and Change Notices,” for current information about usable vintages in a Release 6 system.

In most configurations, the 2- or 3-circuit pack combination of a tone generator pack, tone detector pack, and/or call classifier pack can be replaced with the TN2182 circuit pack, freeing up 1 or 2 port slots.

Since Release 6 supports non-United States call-processing applications, a wide variety of non-United States circuit packs can be used. Contact your Lucent Technologies representative for more information.

Site Inspections

For the purposes of a Release 6 upgrade, most G2 systems are already equipped with the correct TDM/LAN cables (WP-91716 L6 and L7) and the correct lightwave transceivers (9823A or 9823B). However, some G2 systems contain earlier versions of these components, and (based on a site inspection) these older components must be replaced.

The 2 earlier versions of the TDM/LAN cable included the WP-91112 (L1 and L2) and the WP-91716 (L1 and L2). Both of these versions had white labels. In contrast, the correct cables (WP-91716 L6 and L7) have blue labels. If a QPPCN site inspection reveals that the older cables reside in the system, replace the older cables under the QPPCN process.

Earlier versions of lightwave transceivers include the 4-series transceivers (4A through 4F). These transceivers support fiber connections up to 7,000 feet (2134 m) apart; whereas the 9823A supports connections up to 5,000 feet (1524 m), and the 9823B supports connections up to 25,000 feet (7620 m). A single mode fiber transceiver (300A) supports distances of up to 115,000 feet (21.7 miles, 35 km). If the site inspection reveals that the older 4-series transceivers reside in the system, Order the correct transceivers according to a separate PEC.

NOTE:
Using the 300A may require 5 or 10 dB attenuators. Contact your Lucent Technologies representative for more information.

NOTE:
The 9823A transceiver is *not* a direct replacement for the 4-series transceiver (since a pair of 9823A transceivers *cannot* replace a pair of 4-series transceivers supporting a connection of between 5,000 feet (1524 m) and 7,000 feet (2134 m)).

Power and Ground

The new multi-carrier PPN cabinet or any EPN cabinet added for the upgrade can be either AC- or DC-powered. If an added cabinet is powered differently from the existing cabinets, the existing cabinets do not have to be converted since mixed power configurations are allowed. However, the system's power and grounding must be modified so that the AC-powered cabinets are grounded to the same single-point ground point as the DC-powered cabinets.

If a new AC-powered cabinet is to be added, provide a separate AC receptacle to support the new cabinet. This AC receptacle must not be shared with any other equipment and must not be controlled by a wall switch. For the convenience and safety of equipment-room personnel, the receptacle should not be located under the MDF.

NOTE:
The new AC-powered PPN for a Release 6 upgrade has different power requirements than the G2 system. Refer to the *DEFINITY Enterprise Communications Server Release 6 System Description Pocket Reference* for information.

DC Isolator

Each device connected to a DC-powered cabinet, from the asynchronous EIA RS-232 interface, requires a 116A isolator. Insert the isolator at the RS-232 interface between the device and the interface connector to isolate ground between the system and external adjuncts.

Power-Failure Stations

During routine system operation, the ground for the power-failure stations is derived from the system's auxiliary cable. This ground is disconnected during the upgrade, thus disabling the power-failure stations. Therefore, a ground strap must be run to the power-failure transfer panel. Connect this strap shortly after removing power and disconnect it just before restoring power to the system.

To minimize downtime, power-failure transfer equipment should be tested and, if need be, repaired before the hardware upgrade begins.

Software

If the customer plans to emulate existing G2 translations in the upgraded Release 6, then these translations must be copied to a spare tape and sent to Software Technical Support (STS) so that reports of the current G2 translations and a G3-MA diskette with basic station translations can be generated. This process may take several days. STS must return the G2 reports and the diskette to the Project Manager before the upgrade can begin. For each G2 processor, retain 2 tapes (1 system tape and 1 backup tape) on site with the G2 system.

After the reports arrive, many features require special attention because of feature differences, form changes, and potential naming conflicts in the upgrade process.

During the upgrade, the Software Specialist should implement DEFINITY ECS Release 6 translations that are appropriate for the customer's needs. For information to make the required changes, refer to:

- *DEFINITY Enterprise Communications Server Release 6.2 Transition Reference*
- *DEFINITY Enterprise Communications Server Release 6 Administration and Feature Description*

Alarm Connection

The D6 connector on G2 systems had 31 alarm-monitor appearances (Unit 1 to Unit 31) for external equipment. The AUXILIARY connector on an R6 PPN only has appearances for 1M (major alarm) and 1m (minor alarm). If the G2 system being upgraded used more than 1 major or more than 1 minor alarm-monitor appearance, these extra appearances, they can either be distributed to the AUXILIARY connector on a DEFINITY ECS Release 6 EPN, or "ganged" so that several external devices share the same appearance. The alarms can also be accommodated by paralleling them to the above connections.

NOTE:
When several external devices are ganged to the same appearance, each device loses its individual identity. An alarm on a shared appearance only denotes that 1 of several devices reported a problem. Subsequent maintenance effort is needed to determine which device reported the problem and the nature of the problem.

The control circuit pack behind the AUXILIARY connector detects external alarms with a ground-detector chip. Therefore, to gang several external devices, every device must be able to return a true relay ground closure to the AUXILIARY connector. Alternatives, such as a TTL low driver, are inadequate.

The following tables correlate wall-field terminal numbers, connector pin numbers, lead colors, and lead designations for the G2 D6 and DEFINITY ECS Release 6 AUXILIARY connectors.

Table 5-4. Pinouts for D6 Connector on G2 System

Terminal Number	Pin #	Color	Designation	Terminal #	Pin #	Color	Designation
1	26	W-BL	UNIT20	2	01	BL-W	UNIT19
3	27	W-O	UNIT22	4	02	O-W	UNIT21
5	28	W-G	UNIT24	6	03	G-W	UNIT23
7	29	W-BR		8	04	BR-W	UNIT25
9	30	W-S	UNIT27	10	05	S-W	UNIT26
11	31	R-BL	UNIT29	12	06	BL-R	UNIT28
13	32	R-O	UNIT31	14	07	O-R	UNIT30
15	33	R-G	AUXCTMP	16	08	G-R	UNIT32
17	34	R-BR	EXTEQMN	18	09	BR-R	EXTEQMJ
19	35	R-S	AUXCRCT	20	10	S-R	AUXCHO
21	36	BK-BL	AUXCCB	22	11	BL-BK	AUXCFRQ
23	37	BK-O	AUXCFAN	24	12	O-BK	
25	38	BK-G	EXTPRMJ	26	13	G-BK	EXTPRMN
27	39	BK-BR	UNIT2	28	14	BR-BK	UNIT1
29	40	BK-S	UNIT4	30	15	S-BK	UNIT3
31	41	Y-BL	UNIT6	32	16	BL-Y	UNIT5
33	42	Y-O	UNIT8	34	17	O-Y	UNIT7
35	43	Y-G	UNIT10	36	18	G-Y	UNIT9
37	44	Y-BR		38	19	BR-Y	UNIT11
39	45	Y-S	UNIT13	40	20	S-Y	UNIT12
41	46	V-BL	UNIT15	42	21	BL-V	UNIT14
43	47	V-O	UNIT17	44	22	O-V	UNIT16
45	48	V-G		46	23	G-V	UNIT18
47	49	V-BR	RING0	48	24	BR-V	TIP0
49	50	V-S	RING1	50	25	S-V	TIP1

Table 5-5. Pinouts for Auxiliary Connector on Release 6 Systems

Terminal Number	Pin #	Color	Designation	Terminal Number	Pin #	Color	Designation
1	26	W-BL	AUXMJ	2	01	BL-W	GRD
3	27	W-O	AUXMN	4	02	O-W	GRD
5	28	W-G		6	03	G-W	GRD
7	29	W-BR		8	04	BR-W	GRD
9	30	W-S		10	05	S-W	GRD
11	31	R-BL		12	06	BL-R	GRD
13	32	R-O		14	07	O-R	GRD
15	33	R-G		16	08	G-R	
17	34	R-BR		18	09	BR-R	
19	35	R-S		20	10	S-R	
21	36	BK-BL	XFER48	22	11	BL-BK	GRD
23	37	BK-O	XFER48	24	12	O-BK	GRD
25	38	BK-G	XFER48	26	13	G-BK	GRD
27	39	BK-BR	XFER48	28	14	BR-BK	GRD
29	40	BK-S	XFER48	30	15	S-BK	GRD
31	41	Y-BL	XFER48	32	16	BL-Y	GRD
33	42	Y-O	XFER48	34	17	O-Y	GRD
35	43	Y-G		36	18	G-Y	
37	44	Y-BR	GRD	38	19	BR-Y	ACC48A
39	45	Y-S	GRD	40	20	S-Y	ACC48B
41	46	V-BL	GRD	42	21	BL-V	ACC48C
43	47	V-O		44	22	O-V	
45	48	V-G	EXT_ALM	46	23	G-V	EXT_ALM_RT
47	49	V-BR		48	24	BR-V	
49	50	V-S	INADS TIP	50	25	S-V	INADS RING

Save Translations

1. Log in at the Manager II on the G2.
2. Enter **rtx** (run tape, execute) and press Enter. This instructs the system to write all translation information from memory to the tape.
3. Remove the system tape and install the backup tape.
4. Enter **rtx**. Press Enter.

Make Source Tape for TRACS Report

A spare G2 tape must be acquired from the QPPCN before performing the following steps. For each processor, there must always be 2 tapes on site with the G2 system. Do not send a system or backup tape to STS. After performing the previous procedures, copy the G2 translations to the spare tape used to make the TRACS report.

1. Remove the backup tape and install the spare tape.
2. Enter **rtx**. Press Enter. This command instructs the system to write all translation information from memory to the tape.
3. Remove the source tape.
4. Insert the system tape.
5. Mail the source tape (next-day delivery) to STS for use in making the G2 TRACS report.

System Upgrades

There are many configurations of DEFINITY G2 in the field. Each system can have a unique configuration. However, to simplify Release 6 upgrades:

- The existing common control is always replaced by a multi-carrier PPN
- Existing traditional modules are replaced by EPNs
- Existing universal modules are upgraded to EPNs

A new multi-carrier cabinet would then always serve as the PPN. If a G2 universal module is upgraded to a DEFINITY ECS Release 6 EPN, hardware changes (including carrier replacement) are required.

Standard Reliability

Required Hardware

The equipment in Table 5-6 must be on-site before the upgrade begins. To place a claim for missing equipment, as part of the Streamlined Implementation process, call 1-800-772-5409, or the number provided by your Lucent Technologies representative.

Table 5-6. Required Hardware

Equipment	Description	Quantity
PEC 6300-05X	Processor Port Network	1
J58890AF-1	Expansion Control Carrier	1
106647985	TN775B Maintenance	1
103557294 or 103281788	TN776 Expansion Interface TN570 Expansion Interface	2 or 6 [1] 2 or 6 [1,2]
407439975	20-Foot Multi-mode Fiber Optic Cable	1 or 3 [3]
106455348 or 106455363	9823A Lightwave Transceiver 9823B Lightwave Transceiver	2 or 6 [4] 2 or 6 [5]

1. Depending on the number of Release 6 EPNs. Two are required for a standard reliability system with 2 port networks; 6 with 3 port networks. Either 1 or 4 Expansion Interfaces (EIs) are shipped loose with the EPN equipment. The factory has installed either 1 or 2 EIs in the new PPN.
2. Required port network interfaces in a Release 6 system with the optional packet bus.
3. Depending on the number of DEFINITY ECS Release 6 EPNs. Two or 6 are required if the PPN and EPN(s) are remotely located. Assuming acceptable lengths, the fiber that previously connected an upgraded G2 universal module (not a traditional module) to the G2 TMS has the correct transceiver connectors and can be reused.
4. One pair for each fiber connection. For each connection, either 1 lightwave transceiver is installed in an EPN and 1 in the PPN. A transceiver can be reused from each upgraded G2 universal module. Additional transceivers, ordered separately, are also shipped loose with the EPN equipment.

Required Tools

The following tools and items may be required during the upgrade:

- High-intensity flashlight or AC drop light
- 3/8-inch flat-blade screwdriver with a 10-inch shank (minimum)
- 5/16-inch and 1/4-inch sockets with a ratchet and 10-inch extension
- Long-nose pliers to disconnect ground straps and straighten backplane pins
- Static-proof or original circuit pack packaging for transporting circuit packs
- Labels for identifying the port circuit packs and cables attached to the rear of cabinets
- Twelve spare #12 and #10 self-tapping screws
- Four spare carrier ground straps
- Wrist ground strap
- Repair kit for backplane pins (KS-22876 L2 or equivalent)
- One copy of each of the following manuals:
  - *DEFINITY Enterprise Communications Server Release 6 Maintenance for R6vs/si* or *DEFINITY Enterprise Communications Server Release 6 Maintenance for R6r*
  - *DEFINITY Enterprise Communications Server Release 6 Administration and Feature Description*

Follow Routine Preventive Maintenance

During the upgrade, follow routine preventive maintenance procedures on the system to be upgraded. For information about the procedures and necessary equipment, refer to the “Preventive Maintenance” section in *DEFINITY Enterprise Communications Server Release 6 Maintenance for R6r*.

Label Cables

To make reconnecting the cables simpler and more reliable, label both ends of the connector cables associated with the carrier to be removed.

Power Down G2 System

1. At the common control’s power distribution unit, set the main circuit breaker to OFF.
2. At the universal module’s power distribution unit, set the main circuit breaker to OFF.

Install Power-Failure Transfer Ground Wire

CAUTION:
To avoid contaminating single-point ground, do not connect the ground wire while the system is powered up.

1. Connect a 10 AWG (#25) (2.6 mm) wire to pin 49 of the connecting block or to pin 49 of the CAP (cable access panel) on the power-failure transfer panel.
2. Route the opposite end of the wire to an approved ground and connect.

Disconnect Cables

1. With the cable retainer in front of you and the part number visible (4B or 4C), locate the slot that is almost vertical. This slot is adjacent to the part number. Insert a #2 flat blade screwdriver into the slot and twist. The retainer will snap open easily. Remove the cable.
2. Disconnect the cables associated with the carrier to be removed.
3. Remove the rear doors from the cabinet.
4. Behind a previously upgraded cabinet, remove all of the rear panels. Two different types of screws hold the back panels to the cabinet. Remove the #10 screws with a screwdriver or a 1/4-inch socket. Remove the #12 screws with a screwdriver or a 5/16-inch socket.

Remove Circuit Packs from Module Control Carrier A

1. To ensure that power units in the “A” carrier are properly replaced, label each power unit with its slot number.
2. Disconnect the power cords from the power units in the “A” carrier.
3. Remove all circuit packs and power units from carrier “A.” Store the circuit packs in the static-proof packaging.
4. Remove all circuit pack blanks.
5. Remove the front trim plate from the “A” carrier by it pulling straight off.

Remove CURL from Module Control Carrier A

1. Remove the CFY1 current limiter (CURL) from the pin-field block marked “CURL” on the “A” carrier. The CURL is reused in the Release 6 EPN.

   NOTE:
   Verify the CURL meets the minimum usable vintage requirements.

Remove Module Control Carrier A

Disconnect TDM/LAN Cables

NOTE:
Note the position of the TDM/LAN cables before disconnecting.

1. Disconnect 1 end of the TDM/LAN cable (between the “A” and “C” carriers) from the “A” carrier. See Figure 5-1.
2. Disconnect 1 end of the TDM/LAN cable (between the “A” and “D” carriers) from the “A” carrier.

WARNING:
When removing the TDM/LAN cables from a previously upgraded carrier, be careful that none of the short pieces of shrink tubing come off the 4 corner pins of the pin-field block. Otherwise, when the new equipment is connected, -48 volts could short to ground.

3. On port carrier J58890BB-1, connect the TDM cable or TDM terminator to Slot 02. On port carriers J58890BB-2 and J58890BB-3, connect the TDM cables to Slot 01.

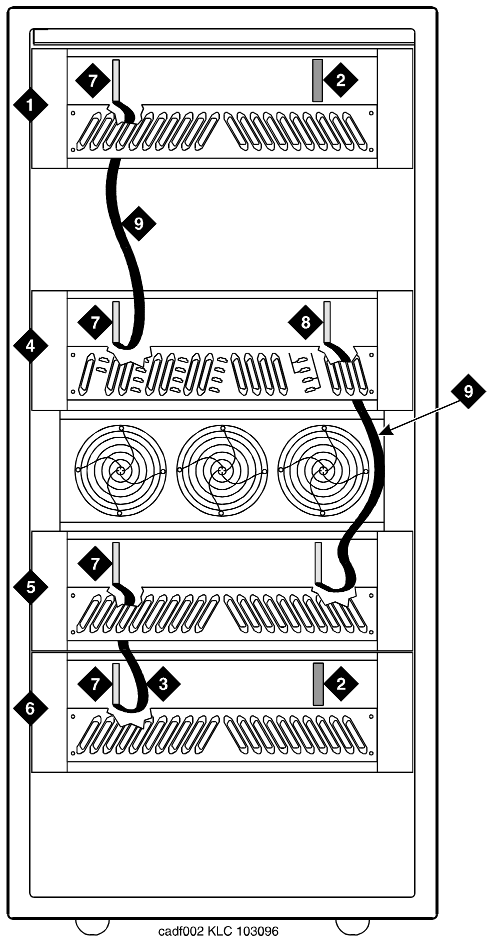


Figure Notes

1. Port Carrier ("C" Position)
2. ZAHF4 TDM/LAN Terminator
3. TDM/LAN Cable (WP91716 L6)
4. Module Control Carrier ("A" Position)
5. Port Carrier ("D" Position)
6. Port Carrier ("E" Position)
7. Slot 21
8. Slot 01
9. TDM/LAN Cable (WP91716 L7)

Figure 5-1. TDM/LAN Connections for Standard Reliability Module

Remove Carrier Ground Straps

1. Disconnect the top and bottom ground straps from the “A” carrier. See Figure 5-2. These straps will reconnect to the new “A” carrier.

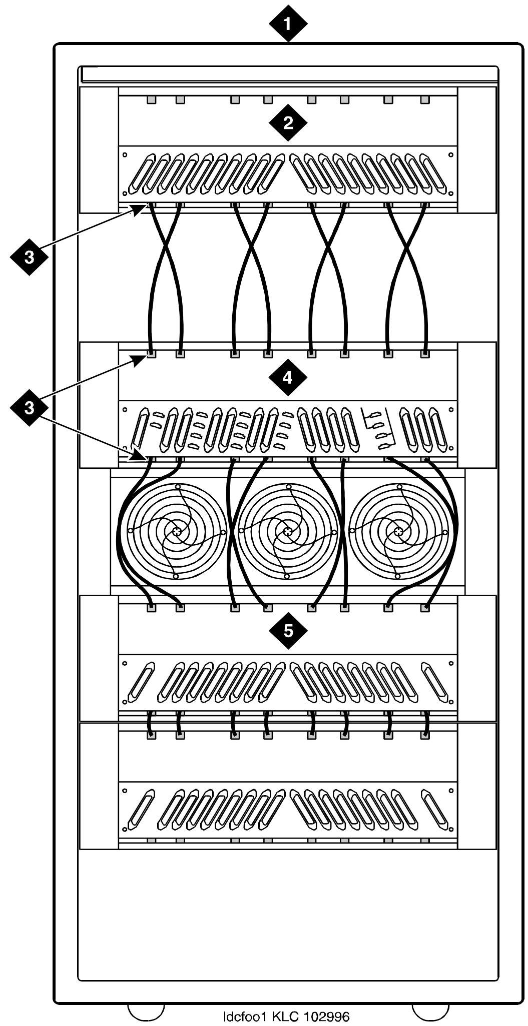


Figure Notes

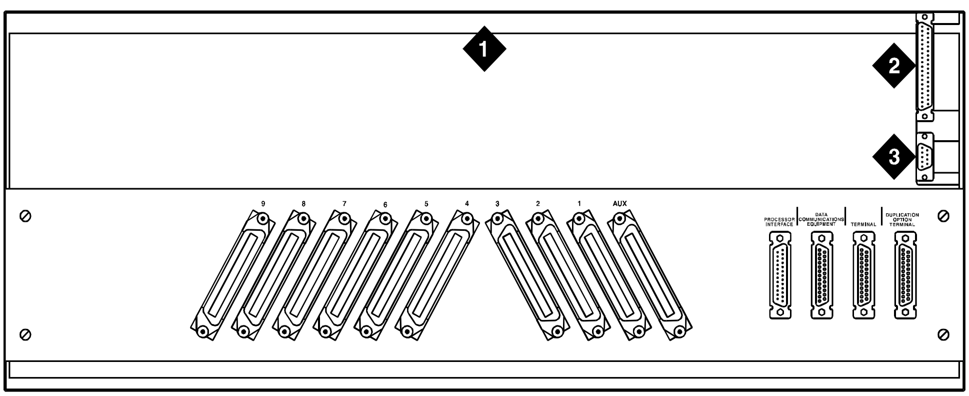
1. Rear of Cabinet
2. Port Carrier (“C” Position)
3. Ground Jumpers
4. Module Control Carrier (“A” Position)
5. Port Carrier (“D” Position)

Figure 5-2. Location of Ground Jumpers

2. Disconnect the “P1” and “P2” cables from the “A” carrier. See Figure 5-3.
3. Remove the fan trim plate by pulling it straight off.
4. Clean or replace the air filter (403326820) if necessary.
5. In front of the carrier, remove the 4 screws (top 2 first) holding the “A” carrier to the cabinet frame. Use a long-handle screwdriver or 5/16-inch socket with a 10-inch extension.
6. Behind the carrier, remove the 2 screws holding the “A” carrier’s rear connector panel to the cabinet frame.
7. Slide the carrier forward 1 to 2 inches. Be sure that no cables or wiring harnesses are caught on the cabinet/carrier framework.

CAUTION:
Cables and wiring harnesses can be damaged if they catch on the framework and if too much pressure is applied in removing the carrier.

8. Remove the carrier by sliding it out the front of the cabinet.



crdfp12 KLC 101596

Figure Notes

1. Rear of Control Carrier
2. P2 Connector
3. P1 Connector

Figure 5-3. Location of P1 and P2 Connectors

Unpack and Inspect Expansion Control Carrier

1. Inspect the new J58890AF Expansion Control Carrier for any damage. Also verify that the backplane pins are not bent.
2. Place the expansion control carrier on the floor so that the rear of the carrier faces up.
3. Install the CFY1 current limiter (CURL) on the “A” carrier to the pin-field block labeled “CURL” Install the CURL with the components on the left.
4. At the rear connector panel, determine which connectors will have a cable attached, and install a 4B cable retainer on each of these connectors.

Install New Expansion Control Carrier A

1. Install the carrier in position “A” by aligning the plastic alignment tips on the top rear of the carrier with the screw holes in the cabinet. These alignment tips support the carrier while installing the screws. Ensure that the power cords are properly placed in the slots at the sides of the carrier.
2. Fasten the carrier into position with 4 self-tapping screws saved from the removal of the old carrier.

   NOTE:
   Carefully realign the threads on the self-tapping screws by turning them counterclockwise 1 turn before tightening them to avoid stripping the threads out of the framework.

3. Connect the “P2” and “P1” cables to the “A” carrier. See Figure 5-3. Snap the connector lock into place to ensure the connection is properly made.
4. Connect the 8 ground straps from the “C” carrier to the new “A” carrier. See Figure 5-2.
5. Connect the 8 ground straps from the “D” carrier to the new “A” carrier.
6. For AC-powered systems, install the 2 new ground straps. One strap connects ground point “1” to the “A” carrier frame (right side), and the other connects ground point “8” to the “A” carrier frame (left side).

   NOTE:
   DC-powered systems do not use these carrier ground straps.

7. Connect the remaining end of the TDM/LAN cable (between the “A” and “D” carriers) to the pin-field block marked “TDM” on the right side of the “A” carrier. See Figure 5-4 and Table 5-7.
8. Connect the remaining end of the TDM/LAN cable (between the “A” and “C” carriers) to the pin-field block marked “TDM” on the left side of the “A” carrier.

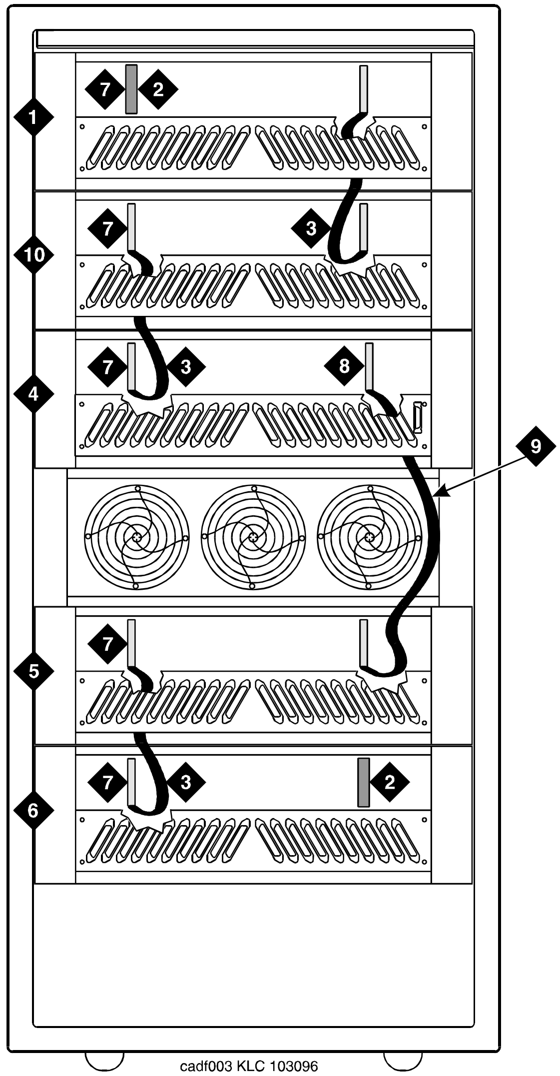


Figure Notes

1. Port Carrier (“C” Position)
2. ZAHF4 TDM/LAN Terminator
3. TDM/LAN Cable (WP91716 L6)
4. Module Control Carrier (“A” Position)
5. Port Carrier (“D” Position)
6. Port Carrier (“E” Position)
7. Slot 21
8. Slot 01
9. TDM/LAN Cable (WP91716 L7)
10. Control Carrier (“B” Position)

Figure 5-4. TDM/LAN Connections for Standard Reliability Release 6 EPN

9. On port carrier J58890BB-1, connect the TDM cable or TDM terminator to Slot 02. On port carriers J58890BB-2 and J58890BB-3, connect the TDM cables to Slot 01.

Table 5-7. TDM/LAN Connections

"J" Number	Carrier Type	LHS Slot	RHS Slot
J58890BB-1	Port	21	02
J58890BB-2	Port	21	01
J58890BB-3	Port	21	01
J58890AF	EPN Control “A”	21	02

10. Install the front trim plate on the “A” carrier. Install the fan trim plate.
11. Install the power units (removed from G2 universal module) into the “A” carrier. Do not interchange the physical locations of the units. The 631AR1, 631WA1, 631DA1, or 644A install in the left side, while the 631BR1, 631WB1, 631DB1, or 645B install in the right side.

    NOTE:
    In most cases, the new Release 6 carrier will contain the same power supplies as in the existing system. However, a Release 6 carrier may contain a 649A Power Unit. If so, re-use the power units from the G2 power module.

12. If the expansion control carrier contains a 631BR1, 631WB1, or 645B power unit, install the previously removed TN736 power unit in port slots “18” and “19” of the carrier (adjacent to the 631BR1, 631WB1, or 645B). If the system is equipped for neon message waiting, a TN752 or TN755 power unit must be used.

    NOTE:
    The TN736 is not required when the 631DB1 or 645B power unit is used in the J58890AF-1 expansion control carrier or the J58890BB-2 or J58890BB-3 port carriers. It is required in the J58890BB-1 port carrier, regardless of which 631 power unit is provided. Use the TN752 or TN755 if the system contains neon message waiting.

13. Connect the white power cords to the power units.

Install Circuit Packs

1. Install the new Release 6 control circuit packs into carrier “A.” Use the new label and the annotated “list configuration all” (provided with the Release 6 tape) as a guide.

   NOTE:
   Currently, the TN768 Tone-Clock circuit pack resides in a port slot of the universal module being upgraded. Relocate this circuit pack to the “TONE CLOCK” slot of carrier “A.” Lucent Technologies recommends upgrading to the TN2182 Tone-Clock.

2. Install circuit pack blanks in slots not equipped with circuit packs.
3. For a directly-connected standard reliability Release 6 system with 2 PNs, ensure the PPN and this EPN both contain a TN776 or TN570 Expansion Interface circuit pack.

   For a directly-connected system with 3 PNs, ensure the PPN and each EPN have two TN776s or TN570s.

Interconnect Port Networks

Fiber optic cabling terminated to 9823A lightwave transceivers can interconnect PNs up to 4,900 feet (1493 m) apart. Fiber optic cabling terminated to 9823B lightwave transceivers can interconnect PNs up to 25,000 feet (7620 m) apart. The 300A fiber optic lightwave transceiver can interconnect PNs up to 115,000 feet (21.7 miles, 35 km) apart.

NOTE:
These distance limits are approximate measurements of the *actual* fiber right-of-way (not of the shortest linear distance) between the 2 endpoints.

NOTE:
It is important to label every cable that you install.

NOTE:
Keep track of which fiber attaches to which connector on each lightwave transceiver. This section provides figures offering suggested ways of making these connections.

The connectors on the lightwave transceivers are labeled either “TX” (transmit) or “RX” (receive), while the fibers attaching to each connector are numbered either “1” or “2.” A viable fiber connection is only made when both fibers in each cable (“1” and “2”) route from the “TX” connector of a port network to the “RX” connector of its adjacent port network. See Figure 5-6.

NOTE:
When finished, refer to Appendix A, ''Fiber Link Administration'' to administer the fiber links.

Collocated Port Networks

For a standard reliability system with 1 collocated EPN, use 1 fiber optic cable and 2 lightwave transceivers to directly connect the networks.

For a standard reliability system with 2 collocated EPNs, use 3 fiber optic cables and 6 lightwave transceivers to directly connect the networks.

NOTE:
Based on floor-plan considerations, the length of these cables may vary. 20 foot (6.1 m) cables are normally adequate for a Release 6 with 2 port networks.

For collocated cabinets, route the fiber optic cables directly from the PPN to the EPN cabinet. If a "DEFINITY style" PPN cabinet is collocated with another "DEFINITY style" EPN cabinet, the preferred routing is to run the cables *up* the cable tray and out the top of the PPN cabinet. The cables are then run to the other cabinet, through the top of the cabinet, and down the cable tray to the desired carrier level.

If a "DEFINITY style" PPN cabinet is collocated with either a small cabinet, medium cabinet, or single-carrier cabinet stack, the preferred routing is to run the cables *down* the cable tray and out the bottom of the PPN cabinet. The cables are then run to the EPN cabinet and up the outside of the rear panels to the desired carrier level.

Fiber-Remoted Port Networks

For a standard reliability system with 1 fiber-remoted EPN, use 2 fiber optic cables,2 lightwave transceivers, and 2 lightguide interconnect units (provided by the PSC).

For a standard reliability system with 2 fiber-remoted EPNs, use 6 fiber optic cables, 6 lightwave transceivers, and 6 lightguide interconnect units (provided by the PSC).

For fiber-remoted cabinets, route the cables down the cable tray and out the bottom of the cabinet to the MDF where the lightguide interconnect units are located.

In either case, use cable ties to secure the cable against the walls of the cable tray at the cable tie positions built into the trays.

For Either 1 or 2 Collocated Expansion Port Networks

1. Behind control carrier A of PPN cabinet 1 (see Figure 5-5, Figure 5-6, and Figure 5-7):

   - Install a lightwave transceiver on the cable connector at slot 1A01.

     NOTE:
     Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

   - Connect 1 end of the fiber optic cable to the lightwave transceiver, just installed, at slot 1A01.
   - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.

2. Behind control carrier A of EPN cabinet 2:

   - Install a lightwave transceiver on cable connector at slot 2A01.

     NOTE:
     Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

   - Connect the other end of the fiber optic cable to the lightwave transceiver, just installed, at slot 2A01.
   - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
   - At the top of the cabinet, coil up the surplus fiber optic cable and attach it to the wall of the cable tray.

For Two Collocated Expansion Port Networks

1. Behind control carrier A of PPN cabinet 1:

   - Install a lightwave transceiver on cable connector at slot 1A02.

     NOTE:
     Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

   - Connect 1 end of the fiber optic cable to the lightwave transceiver, just installed, at slot 1A02.
   - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.

2. Behind control carrier A of EPN cabinet 3:
   - Install a lightwave transceiver on cable connector at slot 3A01.

     NOTE:
     Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

   - Connect the other end of the fiber optic cable to the lightwave transceiver, just installed, at slot 3A01.
   - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
   - At the top of the cabinet, coil up the surplus fiber optic cable and attach it to the wall of the cable tray.
3. Behind control carrier A of EPN cabinet 2:
   - Install a lightwave transceiver on cable connector at slot 2A02.

     NOTE:
     Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

   - Connect 1 end of the fiber optic cable to the lightwave transceiver, just installed, at slot 2A02.
   - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
4. Behind control carrier A of EPN cabinet 3:
   - Install a lightwave transceiver on cable connector at slot 3A02.

     NOTE:
     Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

   - Connect the other end of the fiber optic cable to the lightwave transceiver, just installed, at slot 3A02. See Figure 5-8.
   - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
   - At the top of the cabinet, coil up the surplus fiber optic cable and attach it to the wall of the cable tray.

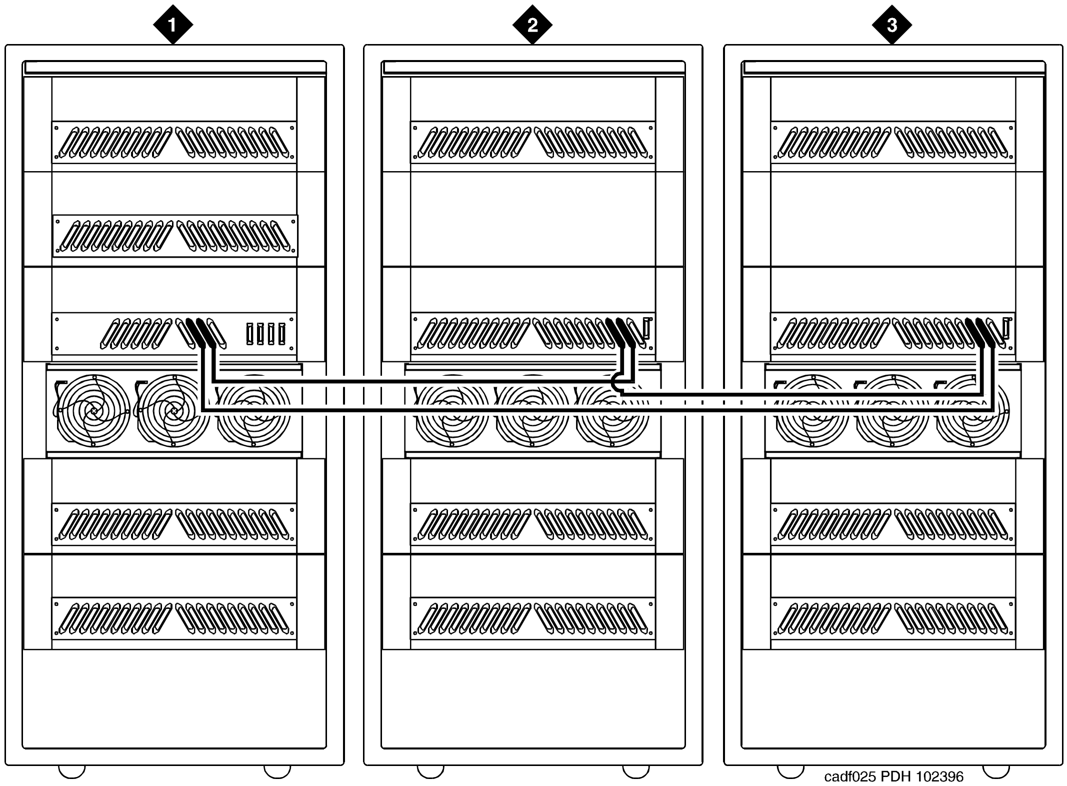


Figure Notes

1. Cabinet 1 Processor Port Network
2. Cabinet 2 Expansion Port Network 1
3. Cabinet 3 Expansion Port Network 2

Figure 5-5. Standard Reliability Release 6 with Two or Three Port Networks

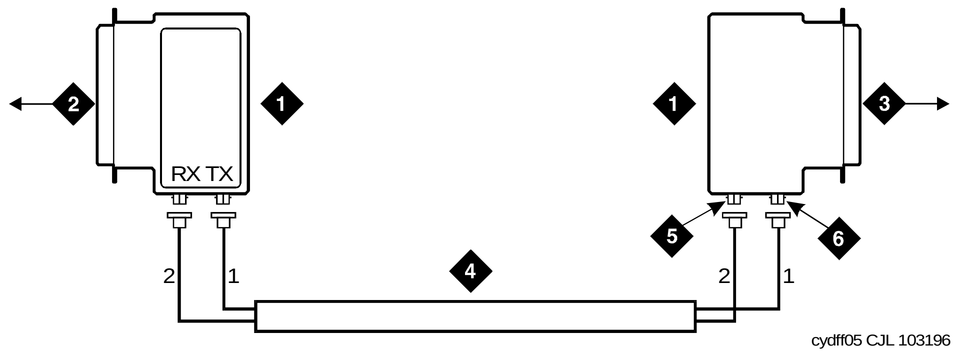


Figure Notes

1. Lightwave Transceiver
2. To PPN Carrier A Slot 1A01
3. To EPN 1 Carrier A Slot 2A01
4. Fiber Optic Cable
5. TX Connector
6. RX Connector

Figure 5-6. Fiber Optic Connections PPN to EPN1

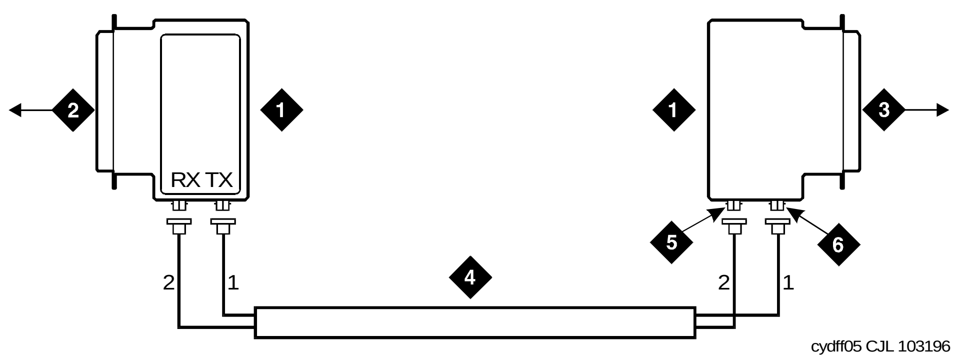


Figure Notes

1. Lightwave Transceiver
2. To PPN Carrier A Slot 1A02
3. To EPN 1 Carrier A Slot 3A01
4. Fiber Optic Cable
5. TX Connector
6. RX Connector

Figure 5-7. Collocated Fiber Optic Connections PPN to EPN2

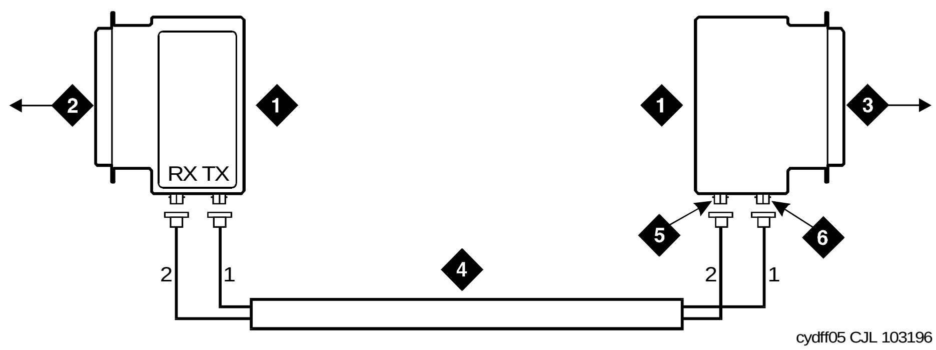


Figure Notes

1. Lightwave Transceiver
2. To PPN Carrier A Slot 2A02
3. To EPN 1 Carrier A Slot 3A02
4. Fiber Optic Cable
5. TX Connector
6. RX Connector

Figure 5-8. Collocated Fiber Optic Connections EPN1 to EPN2

For Either One or Two Fiber-Remoted Expansion Port Networks

1. At control carrier A of PPN cabinet 1. See Figure 5-5 through Figure 5-9.
   - Install a lightwave transceiver on the cable connector at slot 1A01.

     NOTE:
     Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

   - Connect a fiber optic cable to the transceiver just installed.
   - Route the cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
   - Connect the fiber cable to the lightguide interconnect unit provided.
   - Carefully attach the cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
2. Behind control carrier A of EPN cabinet 2:
   - Install a lightwave transceiver on cable connector at slot 2A01.

     NOTE:
     Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

- Connect a fiber optic cable to the transceiver just installed.
- Route the cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
- Connect the fiber cable to the lightguide interconnect unit provided.
- Carefully attach the fiber cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
- Coil up the surplus fiber cable and place it in the cable manager.

For Two Fiber-Remoted Expansion Port Networks

1. Behind control carrier A of PPN cabinet 1:
   - Install a lightwave transceiver on cable connector at slot 1A02.

     NOTE:
     Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

   - Connect a fiber optic cable to the transceiver just installed.
   - Route the cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
   - Connect the fiber cable to the lightguide interconnect unit provided.
   - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
2. Behind control carrier A of EPN cabinet 3:
   - Install a lightwave transceiver on cable connector at slot 3A01.

     NOTE:
     Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

   - Connect a fiber optic cable to the transceiver just installed.
   - Route the cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
   - Connect the fiber cable to the lightguide interconnect unit provided.
   - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
   - Coil up the surplus fiber cable and place it in the cable manager.

3. Behind control carrier A of EPN cabinet 2:
   - Install a lightwave transceiver on cable connector at slot 2A02.

     NOTE:
     Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

   - Connect a fiber optic cable to the transceiver just installed.
   - Route the cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
   - Connect the fiber cable to the lightguide interconnect unit provided.
   - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
4. Behind control carrier A of EPN cabinet 3:
   - Install a lightwave transceiver on cable connector at slot 3A02.

     NOTE:
     Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

   - Connect a fiber optic cable to the transceiver just installed.
   - Route the cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
   - Connect the fiber cable to the lightguide interconnect unit provided.
   - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
   - Coil up the surplus fiber cable and place it in the cable manager.

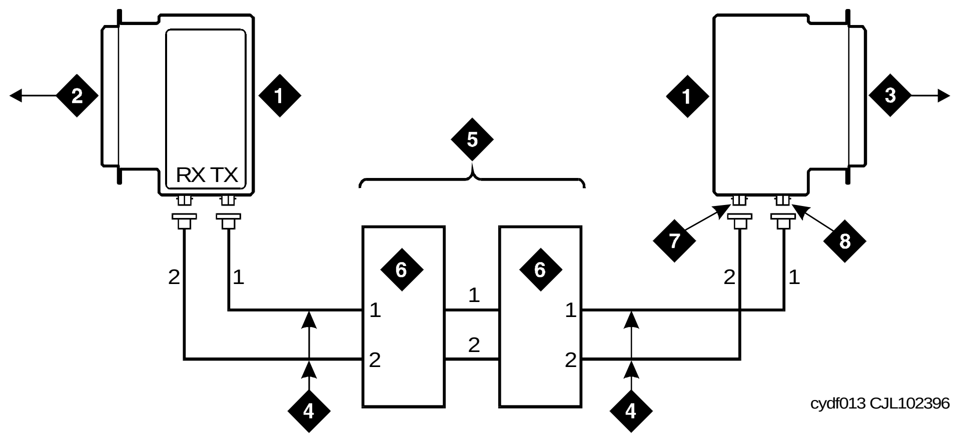


Figure Notes

1. Lightwave Transceiver
2. To EPN1 Carrier A Slot 2A02
3. To EPN2 Carrier A Slot 3A02
4. Fiber Optic Cable
5. Optical Cross-Connect Facility
6. 100A Lightguide Interconnect Unit
7. TX Connector
8. RX Connector

Figure 5-9. Fiber Optic Connections EPN1 to EPN2

Verify Usable Circuit Pack Vintages

Verify that each G2 circuit pack reused in the upgrade conforms to the usable vintage requirements for a Release 6 system (see *Reference Guide for Circuit Pack Vintages and Change Notices*).

Remove Power-Failure Ground Wire

Remove the 10 AWG (#25) (2.6 mm) ground wire from the power-failure transfer unit.

Boot the Release 6 System

1. Connect the management terminal to the “TERMINAL” connector behind PPN control carrier “A,” or install the G3-MA according to the “Set Up G3-MA” chapter of *DEFINITY Communications System Generic 3 Management Applications — Operations*, 585-229-202.
2. Insert the translation card in the TN777B faceplate.
3. Behind each EPN, set the main circuit breaker to ON.
4. Behind each PPN, set the main circuit breaker to ON.
5. The system performs the reset level 4 rebooting process, loading default system translations from the translation card. This takes 8 to 11 minutes.
6. Get the order number of the upgrade, and call the regional CSA to request an “init” login so that the right-to-use options can be enabled on the upgraded system.
7. Enter **set time**, and press Enter to set the time and ensure that the system is booted properly.
8. Enter **list configuration software-version**, and press Enter to compare the version number of the Release 6 software program (displayed on the terminal) with the TN786B version number (written on a label on the TN786B’s faceplate). If the version numbers are not the same, change the version number on the TN786B label so that they agree.
9. Enter **change system-parameters customer-options**. Press Enter. Use this form to enable the customer’s right-to-use options on the upgrade order. See *DEFINITY Enterprise Communications Server Release 6 Administration and Feature Description*, for details.
10. Enter **change site-data** and press Enter. Use this form to assign system-specific information (such as building, floor, stations, and so forth).
11. Enter **save translation** and press Enter. This instructs the system to write all translation information from memory to the translation card.

CAUTION:
If the terminal screen displays “translation corruption detected; call Lucent Technologies distributor immediately”, an error was detected in the translations. Call your Lucent Technologies representative.

Reconnect Cables to Upgraded EPN Cabinet

1. At the power distribution unit of the upgraded EPN, set the main circuit breaker to OFF.

   NOTE:
   Powering down an EPN without powering down the PPN will set off alarms. However, these alarms should clear after power is restored to each EPN.

2. Temporarily disconnect the lightwave transceivers and fiber optic cables from the appropriate carriers.
3. Replace the rear doors or rear panels previously removed.
4. At the EPN cabinet, reconnect the lightwave transceivers, fiber optic cables, and the connector cables.
5. Install the front door on the EPN cabinet if previously removed.

Power Up the EPN Cabinets

1. At each EPN power distribution unit, set the main circuit breaker to ON. After about 40 seconds, EPN power and PPN/EPN communications return.
2. After power returns to each EPN and all trouble is cleared, verify the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal mode.

Retranslate Port Circuits

If port circuit packs in the G2 module control carrier were relocated in order to place:

- A critical port circuit pack, requiring longer nominal battery holdover (such as a DS1 or an Announcement circuit pack), in a port slot
- A TN736, TN752, or TN755 power supply in port slots “18” and “19”
- A TN776 or TN570 Expansion Interface in port slot “1”
- A TN776 or TN570 in port slot “2” (for a second directly connected EPN)

of the new expansion control carrier, verify that they were retranslated during the off-site software upgrade. If not, they must be retranslated now. Refer to *DEFINITY Enterprise Communications Server Release 6 Administration and Feature Description*, for instructions on performing the retranslations.

Resolve Alarms

Examine the alarm log. Resolve any alarms that may exist using *DEFINITY Enterprise Communications Server Release 6 Maintenance for R6r*.

Enable Customer Options and Alarm Origination

1. Get the DOSS order number of the upgrade and call the regional CSA to request an “init” login. The CSA assigns the Release 6 option, which automatically sets the 24-hour password aging for the customer logins.
2. Enter **change system-parameters customer-options** and press Enter.
3. Use these forms to verify the customer options are properly set.

   NOTE:
   If the customer was using Supplementary Services Protocol “b” or “d” on an ISDN-PRI trunk group before the upgrade, set the `Basic Call Setup` field to `y`.

4. Set the `Offer Category` field to **A**.
5. Set the `Activate Offer` field to **y** and press Enter.
6. Be sure the system is part of the existing INADS database by calling the INADS Database Administrator at the Technical Service Center (TSC). Verify that INADS can dial into the system and that the system can dial out to INADS.

   As part of the system registration process, the INADS Database Administrator enables Alarm Origination and customer options.

   NOTE:
   Certain forms have changed for Release 6. Upgraded translations may appear on a different form, fields may shift within a form, and the name assignments to particular fields may change.

Save Translations

1. Enter **save translation** and press Enter to get upgraded translations onto disk. If the translations were corrupted during the upgrade, the following error message displays when logging in:

   WARNING:
   Translation corruption detected; call Lucent Technologies distributor immediately.

NOTE:
The **save translation** command cannot function if the translation corruption message appears.

Back Up Disk

1. Enter **backup disk** and press Enter to backup all changed files.
2. Enter **test stored-data long** and press Enter. This instructs the system to verify the consistency of the MSS files (on the disk and tape).

Return Replaced Equipment

Return unused G2 equipment to Lucent Technologies according to the requirements outlined in:

BCS/Material Logistics, MSL/Attended Stocking Locations Methods and Procedures for Basic Material Returns

High Reliability

Required Hardware

The equipment in Table 5-8 must be on-site before the upgrade begins. To place a claim for missing equipment, as part of the Streamlined Implementation process, call 1-800-772-5409, or the number provided by your Lucent Technologies representative.

Table 5-8. Required Hardware

Equipment	Description	Quantity
J58890A (PEC 6300-05X)	Processor Port Network	1
J58890AF	Expansion Control Carrier	1
106647985	TN775B Maintenance	1
103557294 or 103281788	TN776 Expansion Interface TN570 Expansion Interface	2 or 6 [1] 2 or 6 [1,2]
J58890TF	Tape Cartridge	4
407439975	20-Foot Multi-mode Fiber Optic Cable	1 or 3 [3]
106455348 or 106455363	9823-A Lightwave Transceiver 9823-B Lightwave Transceiver	2 or 6 [4] 2 or 6 [5]

1. Use 2 for a high reliability system with 2 port networks; 6 with 3 port networks. Either 1 or 4 Expansion Interfaces (EIs) ship loose with the EPN equipment. The factory has installed either 1 or 2 EIs in the new PPN.
2. Required port network interfaces in a Release 6 system with the optional packet bus.
3. Use 2 or 6 if the PPN and EPN(s) are remotely located. The fiber that previously connected an upgraded G2 universal module (not a traditional module) to the G2 TMS has the correct transceiver connectors and, therefore, can be reused.
4. One pair for each fiber connection. For each connection, install one 9823-type lightwave transceiver in an EPN and 1 in the PPN. A 9823-type transceiver can be reused from each upgraded G2 universal module. Additional transceivers also ship loose with the EPN equipment.

Required Tools

The following tools and items may be required during the upgrade:

- High-intensity flashlight or AC drop light
- 3/8-inch flat-blade screwdriver with a 10-inch shank (minimum)
- 5/16-inch and 1/4-inch sockets with a ratchet and 10-inch extension
- Long-nose pliers to disconnect ground straps and straighten backplane pins
- Static-proof or original circuit pack packaging for transporting circuit packs
- Labels for identifying the port circuit packs and cables attached to the rear of cabinets
- Twelve spare #12 and #10 self-tapping screws
- Four spare carrier ground straps
- Wrist ground strap
- Repair kit for backplane pins (KS-22876 L2 or equivalent)
- One copy of each of the following manuals:
  - *DEFINITY Enterprise Communications Server Release 6 Maintenance for R6r*
  - *DEFINITY Enterprise Communications Server Release 6 Administration and Feature Description*

Follow Routine Preventive Maintenance

Follow routine preventive maintenance procedures on the system to be upgraded. For information about the procedures and necessary equipment, refer to the “Preventive Maintenance” section in *DEFINITY Enterprise Communications Server Release 6 Maintenance for R6r*.

Label Cables

To make reconnecting the cables simpler and more reliable, label both ends of the connector cables associated with the carrier to be removed.

Power Down G2 System

At the power distribution unit, set the main circuit breaker to OFF.

Install Power-Failure Transfer Ground Wire

CAUTION:
To avoid contaminating single-point ground, do not connect the ground wire while the system is powered up.

1. Connect a 10 AWG (#25) (2.6 mm) wire to pin 49 of the connecting block or to pin 49 of the CAP (cable access panel) on the power-failure transfer panel.
2. Route the opposite end of the wire to an approved ground and connect.

Disconnect Cables

1. With the cable retainer in front of you and the part number visible (4B or 4C), locate the slot that is almost vertical. This slot is adjacent to the part number. Insert a #2 flat blade screwdriver into the slot and twist. The retainer will snap open easily. Remove the cable.
2. Disconnect the cables associated with the carrier to be removed.
3. Remove the rear doors from the cabinet.
4. Remove all of the rear panels. Two different types of screws hold the panels to the cabinet. Remove the #10 screws with a screwdriver or a 1/4-inch socket. Remove the #12 screws with a screwdriver or a 5/16-inch socket.)

Remove Circuit Packs from Module Control Carrier A

1. To ensure that power units in the “A” carrier are properly replaced, label each power unit with its slot number.
2. Disconnect the power cords from the power units in the “A” carrier.
3. Remove all circuit packs and power units from carrier “A.” Store the circuit packs in the static-proof packaging.
4. Remove the circuit pack blanks from the empty slots.
5. Remove the front trim plate from the “A” carrier by pulling it straight off.

Remove CURL from Module Control Carrier A

Remove the CFY1 current limiter (CURL) from the pin-field block marked “CURL” on the “A” carrier. The CURL will be reused in the Release 6 EPN.

NOTE:
Verify that the CURL meets the minimum usable vintage requirements.

Remove Module Control Carrier A

NOTE:
Note the position of each TDM/LAN cables before disconnecting.

1. Disconnect both TDM/LAN cables from the “A”. See Figure 5-10. Leave the other end connected to the “C” carrier.

CAUTION:
When removing the TDM/LAN cables from a previously upgraded carrier, be careful that none of the short pieces of shrink tubing come off the 4 corner pins of the pin-field block. Otherwise, when the new equipment is connected, -48 volts could short to ground.

2. On port carrier J58890BB-1, connect the TDM cable or TDM terminator to Slot 02. On port carriers J58890BB-2 and J58890BB-3, connect the TDM cables to Slot 01.

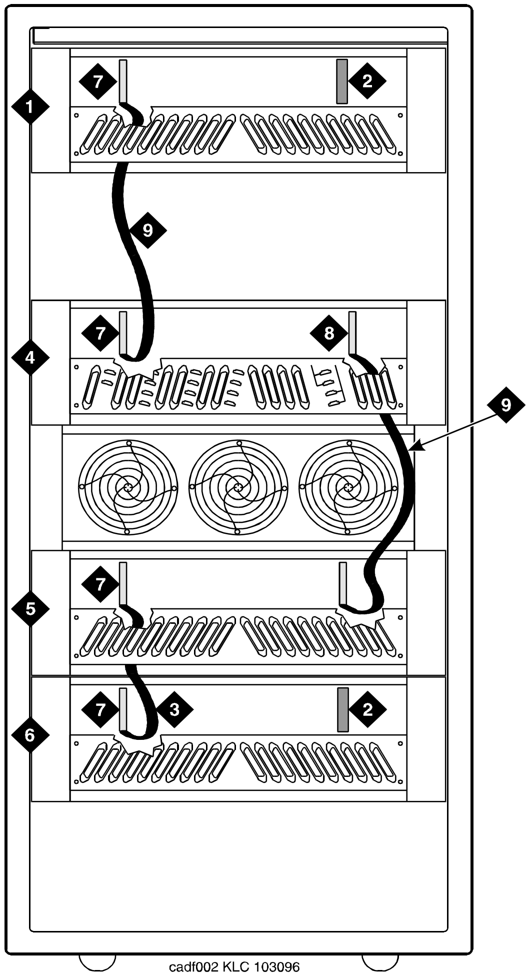


Figure Notes

1. Port Carrier (“C” Position)
2. ZAHF4 TDM/LAN Terminator
3. TDM/LAN Cable (WP91716 L6)
4. Module Control Carrier (“A” Position)
5. Port Carrier (“D” Position)
6. Port Carrier (“E” Position)
7. Slot 21
8. Slot 01
9. TDM/LAN Cable (WP91716 L7)

Figure 5-10. TDM/LAN Connections for High Reliability System

3. Disconnect the 16 ground straps from the top and bottom of the "A" carrier. See Figure 5-11. These straps reconnect to the new "A" carrier.

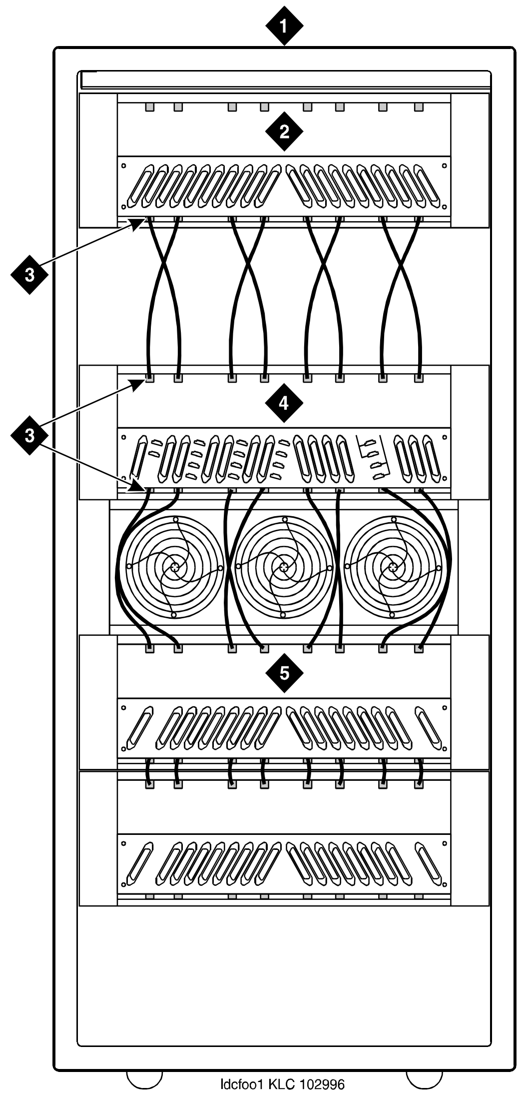


Figure Notes

1. Rear of Cabinet
2. Port Carrier ("C" Position)
3. Ground Jumpers
4. Module Control Carrier ("A" Position)
5. Port Carrier ("D" Position)

Figure 5-11. Locations of Ground Jumpers

4. Disconnect the “P1” and “P2” cables from the “A” carrier. See Figure 5-12.
5. Slide the latch up, and disconnect the “P1” cable from the “B” carrier.

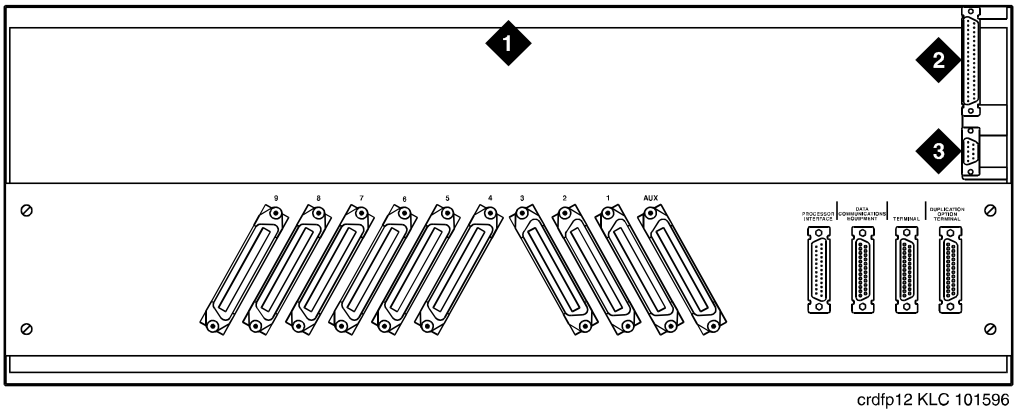


Figure Notes

1. Rear of Control Carrier
2. P2 Connector
3. P1 Connector

Figure 5-12. Location of P1 and P2 Connectors

6. Remove the fan trim plate by pulling it straight off.
7. Clean or replace the air filter (403326820) if necessary.
8. In the front of the carrier, remove the 4 screws (top 2 first) holding the “A” carrier to the cabinet frame. Use a long handle screwdriver or 5/16-inch socket with a 10-inch (25 cm) extension.
9. Behind the carrier, remove the 2 screws holding the “A” carrier’s rear connector panel to the cabinet frame.
10. Slide the carrier forward 1 to 2 inches (2.5 to 5 cm). Be sure that no cables or wiring harnesses are caught on the cabinet/carrier framework.

CAUTION:
Cables and wiring harnesses can be damaged if they catch on the framework and if too much pressure is applied in removing the carrier.

11. Remove the carrier by sliding it out the front of the cabinet.

Unpack and Inspect Expansion Control Carrier

1. Inspect the new J58890AF Expansion Control Carrier for any damage. Also verify that the backplane pins are not bent.
2. Place the expansion control carrier on the floor so that the rear of the carrier faces up.
3. Install the CFY1 current limiter (CURL) on the “A” carrier to the pin-field block marked “CURL.” Install the CURL with the components on the left.
4. At the rear connector panel, determine which connectors will have a cable attached, and install a 4B cable retainer on each of these connectors.

Install New Expansion Control Carrier A

1. Install the carrier in position “A” by aligning the plastic alignment tips on the top rear of the carrier with the screw holes in the cabinet. These alignment tips support the carrier while installing the screws. Ensure that the power cords are properly placed in the slots at the sides of the carrier.
2. Fasten the carrier into position with the 4 self-tapping screws saved from the removal of the old carrier.

   CAUTION:
   Carefully realign the threads on the self-tapping screws by turning them counterclockwise 1 turn before tightening them to avoid stripping the threads out of the framework.

3. Behind the carrier, replace the 2 screws saved from the removal of the old carrier.
4. Connect the “P2” and “P1” cables to the “A” carrier. See Figure 5-12. Snap the connector lock into place to ensure the connection is properly made.
5. Connect the “P1” cable to the “C” carrier. Snap the connector lock into place to ensure the connection is properly made.
6. Connect the 8 ground straps from the “D” carrier to the new “A” carrier See Figure 5-11. These straps were left connected to the “D” carrier.
7. Connect the 8 ground straps from the “C” carrier to the new “A” carrier. These straps were left connected to the “C” carrier.
8. For an AC-powered system, install the 2 new carrier ground straps. One strap connects ground point “1” to the A-carrier frame (right side), and the other connects ground point “8” to the A-carrier frame (left side).

   NOTE:
   DC-powered carriers do not use these carrier ground straps.

9. Connect the remaining end of the TDM/LAN cable (between the “A” and “D” carriers) to the pin-field block marked “TDM” on the right side of the “A” carrier. See Figure 5-14 and Table 5-9. The other end remained connected to the “D” carrier when the old carrier was removed.
10. Connect the remaining end of the TDM/LAN cable (between the “A” and “C” carriers) to the pin-field block marked “TDM” on the left side of the “A” carrier. The other end remained connected to the “C” carrier when the old carrier was removed.
11. On port carrier J58890BB-1, connect the TDM cable or TDM terminator to Slot 02. On port carriers J58890BB-2 and J58890BB-3, connect the TDM cables to Slot 01.

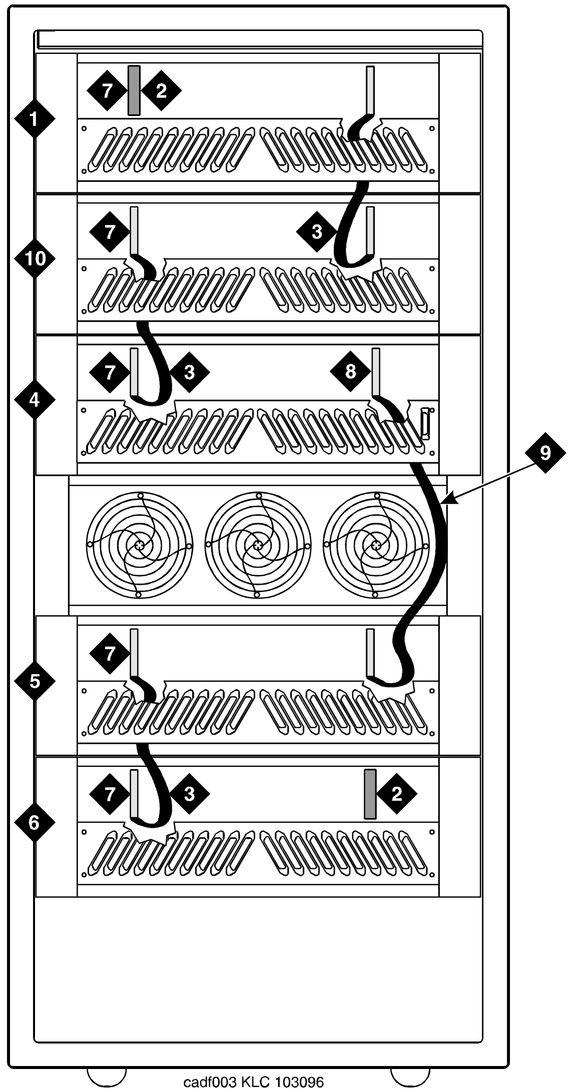


Figure Notes

1. Port Carrier (“C” Position)
2. ZAHF4 TDM/LAN Terminator
3. TDM/LAN Cable (WP91716 L6)
4. Expansion Control Carrier (“A” Position)
5. Port Carrier (“D” Position)
6. Port Carrier (“E” Position)
7. Slot 21
8. Slot 02
9. TDM/LAN Cable (WP91716 L7)
10. Port Carrier (“B” Position)

Figure 5-13. TDM/LAN Connections for High Reliability Release 6 EPN

Table 5-9. TDM/LAN Connections

"J" Number	Carrier Type	LHS Slot	RHS Slot
J58890BB-1	Port	21	02
J58890BB-2	Port	21	01
J58890BB-3	Port	21	01
J58890AF	EPN Control “A”	21	02

12. Install the front trim plate on the “A” carrier.
13. Install the power units (removed from G2 module control carrier) into the “A” carrier. Do not interchange the physical locations of the units. The 631AR1, 631WA1, 631DA1, or 644A install in the left side, while the 631BR1, 631WB1, 631DB1, or 645B install in the right side.

    NOTE:
    In most cases, the new Release 6 carrier will contain the same power supplies as in the existing system. However, the new Release 6 carrier may contain a 649A Power Unit. If so, use the power units from the G2 power module.

14. If the expansion control carrier contains a 631BR1, 631WB1, or 645B power unit, install the previously removed TN736 power unit in port slots “18” and “19” of the carrier (adjacent to the 631BR1, 631WB1, or 645B). If the system is equipped for neon message waiting, a TN752 or TN755 power unit must be used.

    NOTE:
    The TN736 is not required when the 631DB1 or 645B power unit is used in the J58890AH control carrier or the J58890BB-2 or J58890BB-3 port carriers. It is required in the J58890BB-1 port carrier, regardless of which 631 power unit is provided. Use the TN752 or TN755 if the system is equipped with neon message waiting.

15. Connect the white power cords to the power units.

Install Circuit Packs

1. Install the new Release 6 control circuit packs into carrier "A." See Figure 5-15, the new decal, and the annotated "list configuration all" (provided with the Release 6 tape) as a guide.

   NOTE:
   Currently, the TN768 Tone-Clock circuit pack resides in a port slot of the universal module being upgraded. Relocate this circuit pack to the "TONE CLOCK" slot of carrier "A." Lucent Technologies recommends that you upgrade to the TN2182 Tone-Clock.

2. For a directly-connected high reliability Release 6 system with 2 port networks, ensure the PPN and this EPN are both equipped with a TN776 or TN570 expansion interface circuit pack.

   For a directly-connected system with 2 port networks, ensure that the PPN and each EPN have two TN776s or TN570s.

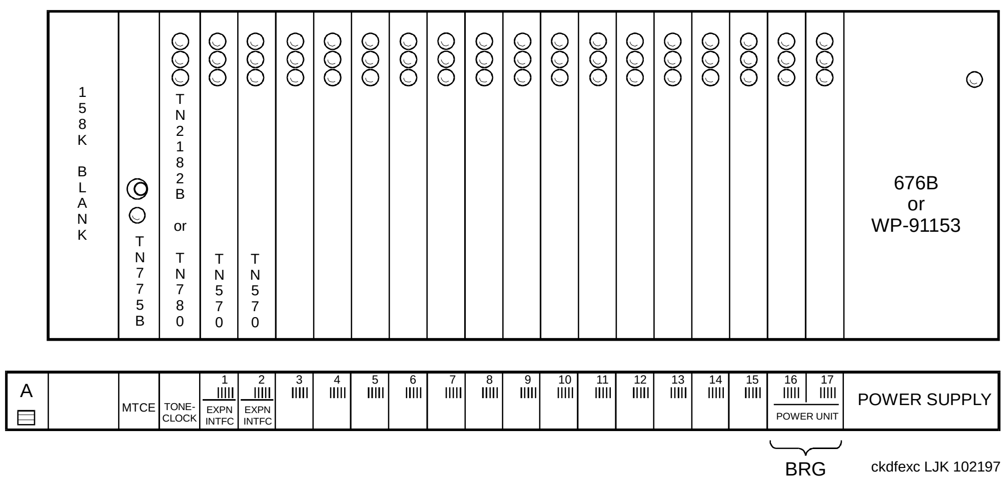


Figure 5-14. Circuit Pack Locations in Release 6 Expansion Control Carrier

Interconnect Port Networks — High Reliability

Fiber optic cabling terminated to 9823A lightwave transceivers can interconnect PNs up to 4,900 feet (1493 m) apart. Fiber optic cabling terminated to 9823B lightwave transceivers can interconnect PNs up to 25,000 feet (7620 m) apart. A 300A fiber optic lightwave transceiver can interconnect PNs up to 115,000 feet (21.7 miles, 35 km) apart.

NOTE:
These distance limits are approximate measurements of the *actual* fiber right-of-way (not of the shortest linear distance) between the 2 endpoints.

NOTE:
It is important to label every cable that you install.

NOTE:
Keep track of which fiber attaches to which connector on each lightwave transceiver. This section provides figures offering the suggested way of making these connections.

The connectors on the lightwave transceivers are labeled either “TX” (transmit) or “RX” (receive), while the fibers attaching to each connector are numbered either “1” or “2.” A viable fiber connection is only made when both fibers in each cable (“1” and “2”) route from the “TX” connector of a port network to the “RX” connector of its adjacent port network. See Figure 5-17.

NOTE:
When finished, refer to Appendix A, ‘‘Fiber Link Administration’’ to administer the fiber links.

Collocated Port Networks

For a high reliability system with 1 collocated expansion port network, use 1 fiber optic cable and 2 lightwave transceivers to directly connect the networks.

For a high reliability system with 2 collocated expansion port networks, use 3 fiber optic cables and 6 lightwave transceivers to directly connect the networks.

NOTE:
Based on floor plan considerations, the length of these fiber cables may vary. 20 foot (6.1 m) cables are normally adequate for a Release 6 with 2 port networks.

For collocated cabinets, the fiber optic cables should be routed directly from the PPN to the EPN cabinet. If a “DEFINITY style” PPN cabinet is collocated with another “DEFINITY style” EPN cabinet, the preferred routing is to run the cables *up* the cable tray and out the top of the PPN cabinet. The cables are then run to the other cabinet, through the top of the cabinet, and down the cable tray to the desired carrier level.

NOTE:
Refer to *DEFINITY Enterprise Communications Server Release 6 Installation and Test for Multi-Carrier Cabinets*, for additional guidelines about fiber routing.

If a “DEFINITY style” PPN cabinet is collocated with either a small cabinet, medium cabinet, or single-carrier cabinet stack, the preferred routing is to run the cables *down* the cable tray and out the bottom of the PPN cabinet. The cables are then run to the EPN cabinet and up the outside of the rear panels to the desired carrier level.

Fiber-Remoted Port Networks

For a high reliability system with 1 fiber-remoted expansion port network, 2 fiber optic cables, 2 lightwave transceivers, and 2 lightguide interconnect units (provided by the PSC) are required.

For a high reliability system with 2 fiber-remoted expansion port networks, 6 fiber optic cables, 6 lightwave transceivers, and 6 lightguide interconnect units (provided by the PSC) are required.

For fiber-remoted cabinets, route the cables down the cable tray and out the bottom of the cabinet to the cross-connect field where the lightguide interconnect units are located.

In either case, use cable ties to secure the cable against the walls of the cable tray at the cable tie positions built into the trays.

For Either 1 or 2 Collocated Expansion Port Networks

1. At control carrier A of PPN cabinet 1 (see Figure 5-16 through Figure 5-19):
   - Install a lightwave transceiver on the cable connector at slot 1A01.

     NOTE:
     Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

   - Connect a fiber optic cable to the transceiver just installed.
   - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.

2. Behind control carrier A of EPN cabinet 2:
   - Install a lightwave transceiver on the cable connector at slot 2A01.

     NOTE:
     Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

   - Connect the other end of the fiber optic cable to the transceiver just installed.
   - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
   - At the top of the cabinet, coil the surplus of fiber optic cable and carefully attach the coil to the wall of the cable tray.

For Two Collocated Expansion Port Networks

1. Behind control carrier A of PPN cabinet 1:
   - Install a lightwave transceiver on the cable connector at slot 1A02.

     NOTE:
     Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

   - Connect a fiber optic cable to the transceiver just installed.
   - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
2. Behind control carrier A of EPN cabinet 3:
   - Install a lightwave transceiver on the cable connector at slot 3A01.

     NOTE:
     Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

   - Connect the other end of the fiber optic cable to the lightwave transceiver just installed.
   - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
   - At the top of the cabinet, coil up the surplus fiber optic cable and attach it to the wall of the cable tray.
3. Behind control carrier A of EPN cabinet 2:
   - Install a lightwave transceiver on the cable connector at slot 2A02.
   - Connect a fiber optic cable to the transceiver just installed.
   - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.

4. Behind control carrier A of EPN cabinet 3:
   - Install a lightwave transceiver on the cable connector at slot 3A02.

     NOTE:
     Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

   - Connect the other end of the fiber optic cable to the transceiver just installed.
   - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
   - At the top of the cabinet, coil up the surplus fiber optic cable and attach it to the wall of the cable tray.

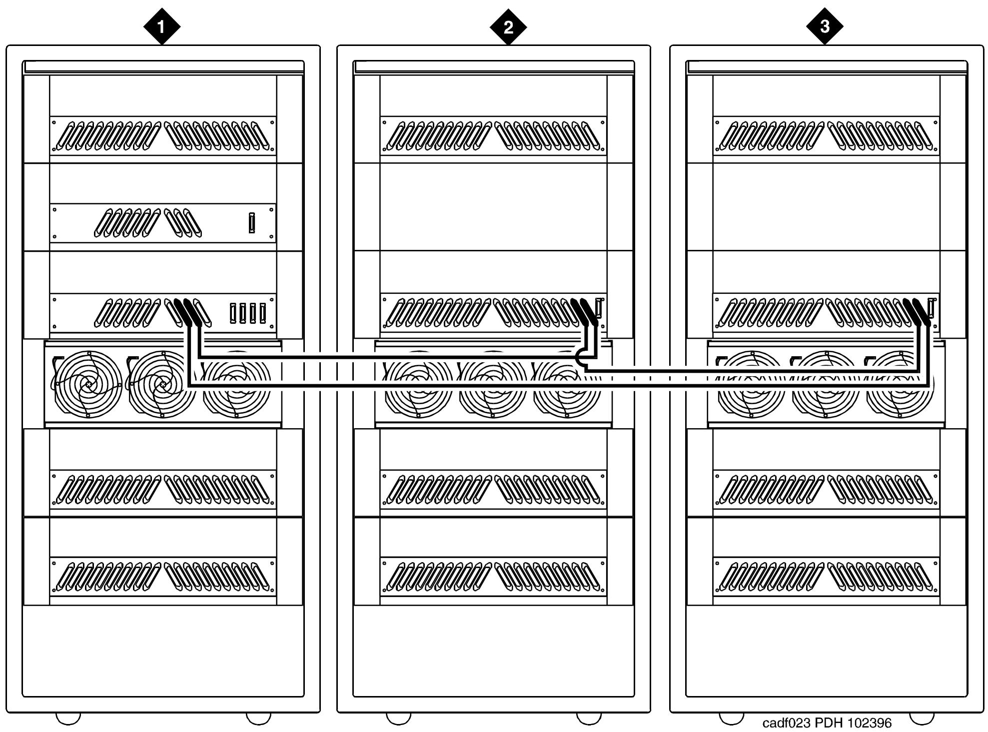


Figure Notes

1. Cabinet 1 Processor Port Network
2. Cabinet 2 Expansion Port Network 1
3. Cabinet 3 Expansion Port Network 2

Figure 5-15. High Reliability Release 6 with Two or Three Port Networks

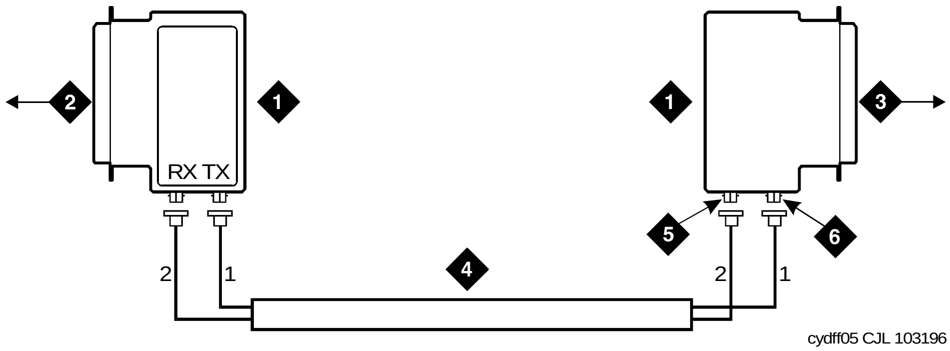


Figure Notes

1. Lightwave Transceiver
2. To PPN Carrier C Slot 1C02
3. To EPN 1 Carrier A Slot 2A01
4. Fiber Optic Cable
5. RX Connection
6. TX Connection

Figure 5-16. Fiber Optic Connections PPN to EPN1

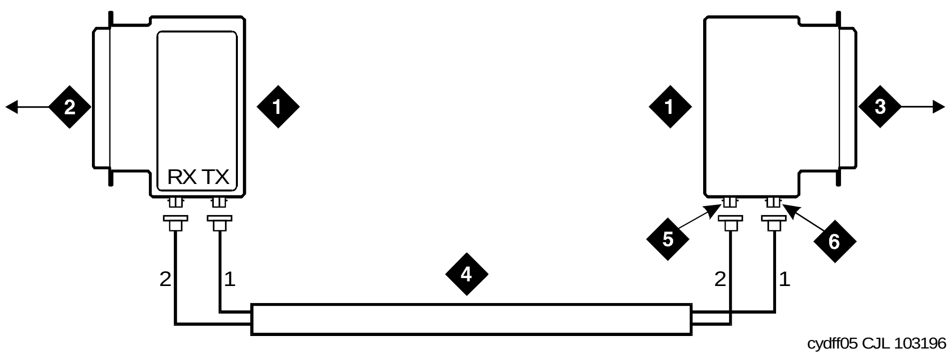


Figure Notes

1. Lightwave Transceiver
2. To PPN Carrier A Slot 1D02
3. To EPN 1 Carrier A Slot 3A01
4. Fiber Optic Cable
5. RX Connection
6. TX Connection

Figure 5-17. Fiber Optic Connections PPN to EPN2

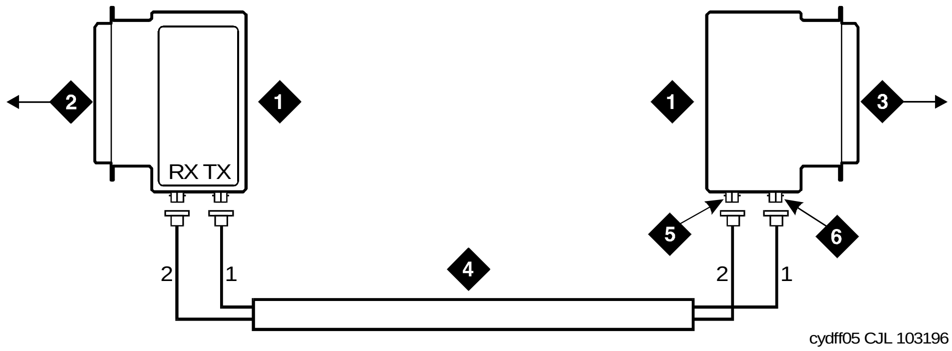


Figure Notes

1. Lightwave Transceiver
2. To EPN Carrier A Slot 2A02
3. To EPN 1 Carrier A Slot 3A02
4. Fiber Optic Cable
5. RX Connection
6. TX Connection

Figure 5-18. Fiber Optic Connections EPN1 to EPN2

For Either One or Two Fiber-Remoted Expansion Port Networks

1. At control carrier A of PPN cabinet 1 (see Figure 5-20 through Figure 5-23):

   - Install a lightwave transceiver on the cable connector at slot 1A01.

     NOTE:
     Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

   - Connect a fiber optic cable to the transceiver just installed.
   - Route the cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
   - Connect the cable to the lightguide interconnect unit provided.
   - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.

2. Behind control carrier A of EPN cabinet 2:
   - Install a lightwave transceiver on the cable connector at slot 2A01.

     NOTE:
     Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

   - Connect the fiber optic cable to the transceiver just installed.
   - Route the cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
   - Connect the cable to the lightguide interconnect unit provided.
   - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
   - Coil up the surplus fiber cable and place it in the cable manager.

For 2 Fiber-Remoted Expansion Port Networks

1. Behind control carrier A of PPN cabinet 1:
   - Install a lightwave transceiver on the cable connector at slot 1A02.

     NOTE:
     Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

   - Connect a fiber optic cable to the transceiver just installed.
   - Route the cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
   - Connect the fiber cable to the lightguide interconnect unit provided.
   - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
2. Behind control carrier A of EPN cabinet 3:
   - Install a lightwave transceiver on the cable connector at slot 3A01.

     NOTE:
     Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

   - Connect the remaining end of the fiber cable to the transceiver just installed.
   - Route the cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
   - Connect the fiber cable to the lightguide interconnect unit provided.

- Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
- Coil up the surplus fiber cable and place it in the cable manager.

3. Behind control carrier A of EPN cabinet 2:
   - Install a lightwave transceiver on the cable connector at slot 2A02.
   - Connect a fiber optic cable to the transceiver just installed.
   - Route the cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
   - Connect the fiber cable to the lightguide interconnect unit provided.
   - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
4. Behind control carrier A of EPN cabinet 3:
   - Install a lightwave transceiver on the cable connector at slot 3A02.

     NOTE:
     Attenuators may be required for single mode fiber using a 300A Lightwave Transceiver

   - Connect the remaining end of the cable to the transceiver just installed.
   - Route the cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
   - Connect the fiber cable to the lightguide interconnect unit provided.
   - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
   - Coil up the surplus fiber cable and place it in the cable manager.

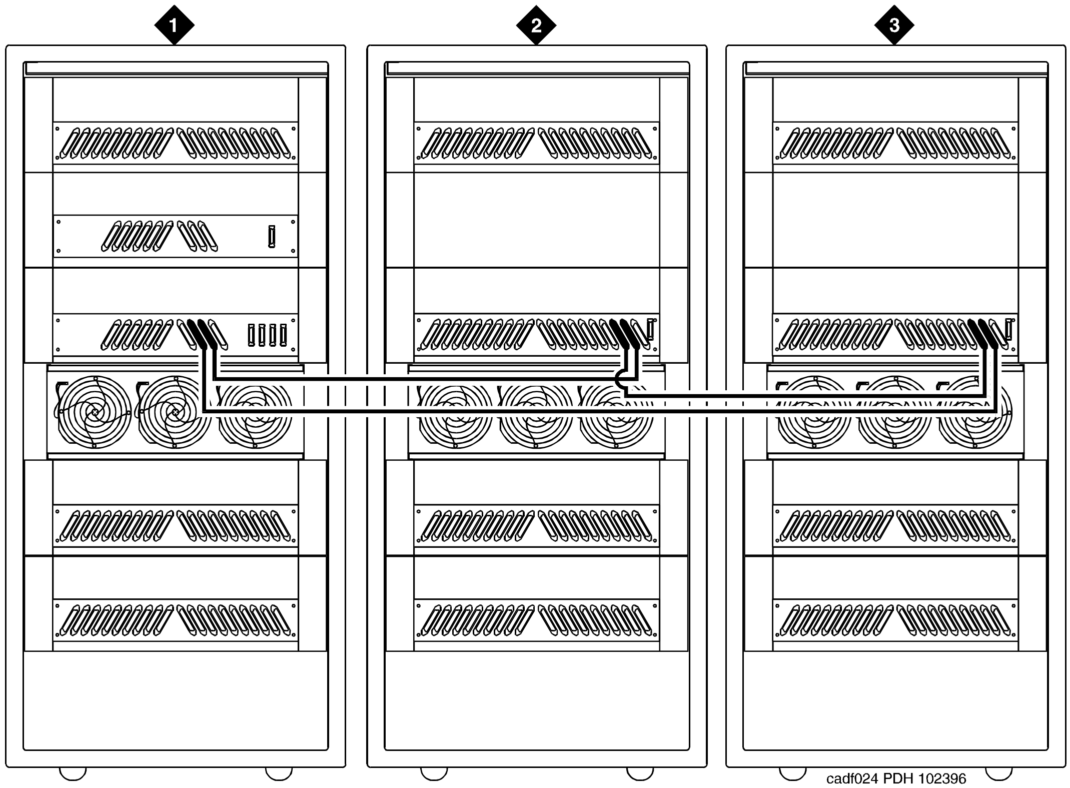


Figure Notes

1. Cabinet 1 Processor Port Network
2. Cabinet 2 Expansion Port Network 1
3. Cabinet 3 Expansion Port Network 2

Figure 5-19. High Reliability Release 6 with Two or Three Port Networks

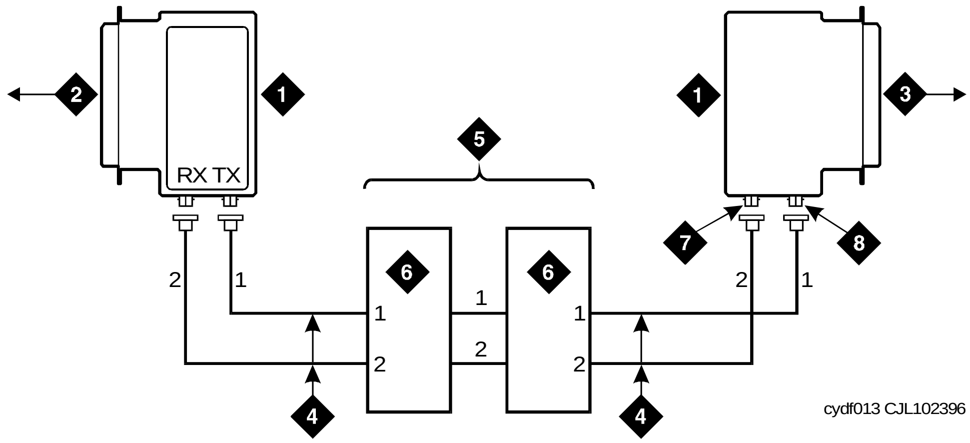


Figure Notes

1. Lightwave Transceiver
2. To PPN Carrier C Slot 1C02
3. To EPN 1 Carrier A Slot 2A01
4. Fiber Optic Cable
5. Optical Cross-Connect Facility
6. 100A Lightguide Interconnect Unit (LIU)
7. TX COnnector
8. RX Connector

Figure 5-20. Fiber Optic Connections PPN to EPN1

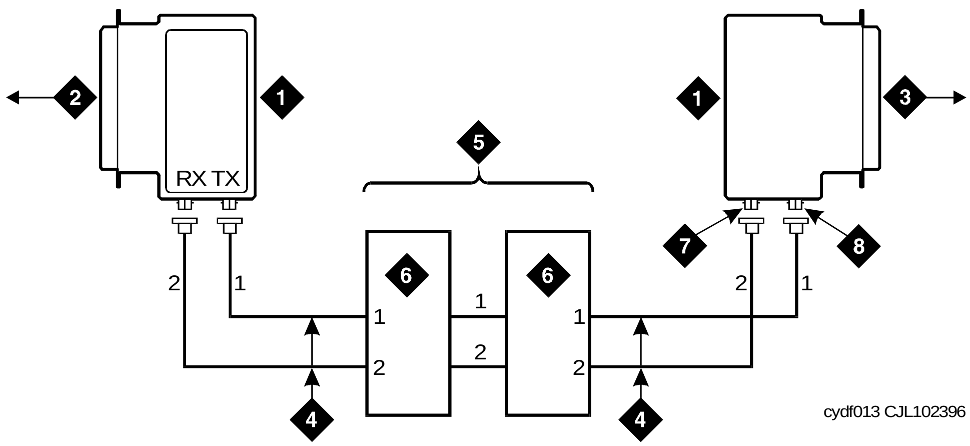


Figure Notes

1. Lightwave Transceiver
2. To PPN Carrier D Slot 1D02
3. To EPN2 Carrier A Slot 3A01
4. Fiber Optic Cable
5. Optical Cross-Connect Facility
6. 100A Lightguide Interconnect Unit
7. TX Connector
8. RX Connector

Figure 5-21. Fiber Optic Connections PPN to EPN2

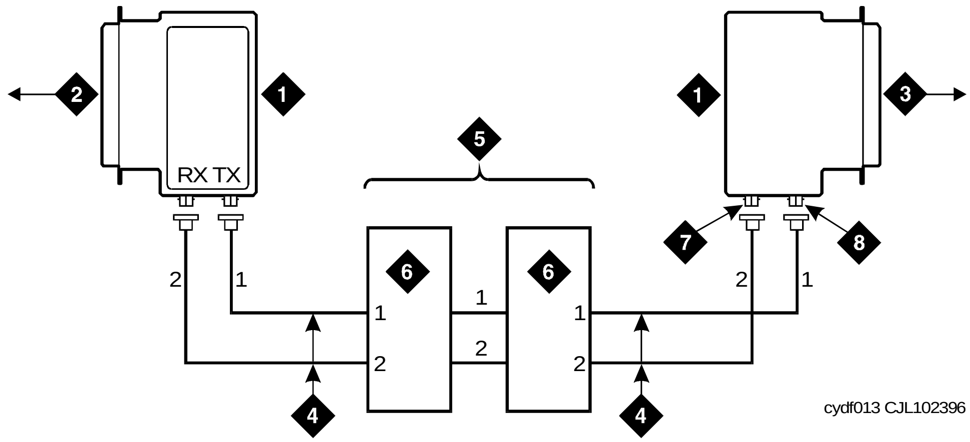


Figure Notes

1. Lightwave Transceiver
2. To EPN1 Carrier A Slot 2A02
3. To EPN2 Cabinet A Slot 3A02
4. Fiber Optic Cable
5. Optical Cross-Connect Facility
6. 100A Lightguide Interconnect Unit
7. TX Connector
8. RX Connector

Figure 5-22. Fiber Optic Connections EPN1 to EPN2

Verify Usable Circuit Pack Vintages

Verify that each reused circuit pack conforms to the usable vintage requirements for a Release 6 system (see Reference Guide for Circuit Pack Vintages and Change Notices).

Remove Power-Failure Ground Wire

Remove the 10 AWG (#25) (2.6 mm) ground wire from the power-failure transfer unit.

Boot the Release 6 System

1. Connect the management terminal to the “TERMINAL” connector behind PPN control carrier “A,” or install the G3-MA according to the “Set Up G3-MA” chapter of *DEFINITY Communications System Generic 3 Management Applications — Operations*, 585-229-202.
2. Insert the translation cards in the TN777B faceplates.
3. At each EPN power distribution unit, set the main circuit breaker to ON.
4. At the PPN power distribution unit, set the main circuit breaker to ON.
5. The system performs the reset level 4 rebooting process, loading the default system translations from the translation card. This takes 8 to 11 minutes.
6. Get the order number of the upgrade, and call the regional CSA to request an “init” login so the right-to-use options can be enabled on the upgraded system.
7. Enter **set time**, and press Enter to set the time and ensure that the system is booted properly.
8. Enter **list configuration software-version long**, and press Enter to compare the version number of the DEFINITY ECS Release 6 software program with the version number (written on a label on the processor’s faceplate). If the version numbers are not the same, change the version number on the processor label so that they agree.
9. Enter **change system-parameters customer-options**. Press Enter. Use this form to enable the Release 6 option and to assign the customer’s other right-to-use options on the G2-to-DEFINITY ECS Release 6 upgrade order. See *DEFINITY Enterprise Communications Server Release 6 Administration and Feature Description*, for details on enabling these options.
10. Enter **change site-data**. Press Enter. Use this form to assign system-specific information (such as building, floor, stations, and so forth).
11. Enter **status system 1**, and press Enter to verify the system is in the “active/standby” mode.
12. Enter **save translation**. Press Enter. This instructs the system to write all translation information from memory to the translation card.

WARNING:
If the terminal screen displays “translation corruption detected; call Lucent Technologies distributor immediately”, an error was detected in the translations.

Reconnect Cables

1. At the power distribution unit of the upgraded EPN, set the main circuit breaker to OFF.

   NOTE:
   Powering down an EPN without powering down the PPN will set off alarms. However, these alarms should clear after power is restored to each EPN.

2. Temporarily disconnect the lightwave transceivers and fiber optic cables, already labeled, from the appropriate carriers.
3. Replace the back doors or back panels.
4. At the EPN cabinet, reconnect the lightwave transceivers, fiber optic cables, and the connector cables associated with the carrier being replaced.
5. Install the front door on the EPN cabinet.

Power Up the EPN Cabinets

1. At each EPN power distribution unit, set the main circuit breaker to ON.

   After about 40 seconds, EPN power and PPN/EPN communications return.

2. After power returns to each EPN and all trouble is cleared, verify that the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal mode.

Retranslate Port Circuits

If port circuit packs in the G2 module control carrier were relocated in order to put:

- A critical port circuit pack, requiring longer nominal battery holdover (such as a DS1 or an Announcement circuit pack), in a port slot
- A TN736, TN752, or TN755 power supply in port slots “18” and “19”
- A TN776 or TN570 Expansion Interface in port slot “1”
- A TN776 or TN570 in port slot “2” (for a second directly connected EPN)

of the new expansion control carrier, verify that they were retranslated during the off-site software upgrade. If not, they must be retranslated now. Refer to *DEFINITY Enterprise Communications Server Release 6 Administration and Feature Description*, for instructions on performing the retranslations.

Enable TTI

1. Enter **change system-parameters features** and press Enter.
2. Use page 2 of the form to change the TTI field back to y.

Enable Scheduled Maintenance

Enter **change system-parameters maintenance**, and press Enter. Enable the scheduled daily maintenance.

Resolve Alarms

Examine the alarm log. Resolve any alarms that may exist using *DEFINITY Enterprise Communications Server Release 6 Maintenance for R6vs/si*.

Enable Customer Options and Alarm Origination

1. Get the DOSS order number of the upgrade and call the regional CSA to request an "init" login. The CSA assigns the Release 6 option, which automatically sets the 24-hour password aging for the customer logins.
2. Enter **change system-parameters customer-options** and press Enter.
3. Use these forms to verify the customer options are properly set.

   NOTE:
   If the customer was using Supplementary Services Protocol "b" or "d" on an ISDN-PRI trunk group before the upgrade, set the `Basic Call Setup` field to `y`.

4. Set the `Offer Category` field to **A**.
5. Set the `Activate Offer` field to **y** and press Enter.
6. Be sure the system is part of the existing INADS database by calling the INADS Database Administrator at the Technical Service Center (TSC). Verify that INADS can dial into the system and that the system can dial out to INADS.

   As part of the system registration process, the INADS Database Administrator enables Alarm Origination and customer options.

Save Translations

1. Enter **save translation** and press Enter to get upgraded translations onto disk. If the translations were corrupted during the upgrade, the following error message displays when logging in:

   WARNING:
   Translation corruption detected; call Lucent Technologies distributor immediately.

   NOTE:
   The **save translation** command cannot function if the translation corruption message appears.

Back Up Disk

1. Enter **backup disk** and press Enter to backup all changed files.
2. Enter **test stored-data long** and press Enter. This instructs the system to verify the consistency of the MSS files (on the disk and tape).

Return Replaced Equipment

Return unused G2 equipment to Lucent Technologies according to the requirements outlined in:

BCS/Material Logistics, MSL/Attended Stocking Locations

Methods and Procedures for Basic Material Returns

Critical Reliability

Upgrade Cabinets

An existing universal module cabinet is always upgraded to an EPN.

Required Hardware

The equipment in Table 5-10 *must* be on-site before the upgrade begins. To place a claim for missing equipment, as part of the Streamlined Implementation process, call "1-800-772-5409" or the number provided by your Lucent Technologies representative.

Table 5-10. Required Hardware

Equipment	Description	Quantity
PEC 6300-05X	Processor Port Network	1
J58890AF	Expansion Control Carrier	1
J58890BB-3	Port Carrier	1
106647985	TN775B Maintenance	1
103557294 or 103281788	TN776 Expansion Interface TN570 Expansion Interface	4 or 12 [1] 4 or 12 [1,2]
J58890TF	Tape Cartridge	4
H-600-204 G1	ICC	2 [3]
407439975	20-Foot Multi-mode Fiber Optic Cable	2 or 6 [4]
106455348 or 106455363	9823-A Lightwave Transceiver 9823-B Lightwave Transceiver	4 or 12 (See Note 1) 4 or 12 (See Note 1)
106689516	TN771D Maintenance Test	1 or 2

1. Use 4 for a critical reliability system with 2 port networks or 12 with 3 port networks. Either 2 or 8 Expansion Interfaces (EIs) ship loose with the EPN equipment. The factory has installed the other 2 or 4 EIs in the new PPN.
2. Required port network interfaces in a Release 6 system with the optional packet bus.
3. Required for an EPN in a critical reliability system.
4. Use 4 or 12 if the EPNs and the PPN are remotely located. Assuming acceptable lengths, the fibers previously connecting an upgraded G2 universal module (not a traditional module) to the G2 TMS have the correct transceiver connectors and can be reused.

Required Tools

The following tools and items may be required during the upgrade:

- High-intensity flashlight or AC drop light
- 3/8-inch flat-blade screwdriver with a 10-inch shank (minimum)
- 5/16-inch and 1/4-inch sockets with a ratchet and 10-inch extension
- Long-nose pliers to disconnect grounding straps and straighten backplane pins
- Static-proof or original circuit pack packaging for transporting circuit packs
- Labels for identifying the port circuit packs and cables attached to the rear of cabinets
- Twelve #12 and #10 self-tapping screws
- Four spare carrier grounding straps
- Wrist ground strap
- Repair kit for backplane pins (KS-22876 L2 or equivalent)
- One copy of each of the following manuals:
  - *DEFINITY Enterprise Communications Server Release 6 Maintenance for R6r*
  - *DEFINITY Enterprise Communications Server Release 6 Administration and Feature Description*

Follow Routine Preventive Maintenance

During the upgrade, follow routine preventive maintenance procedures on the system to be upgraded. For information about the procedures and necessary equipment, refer to the “Preventive Maintenance” section in *DEFINITY Enterprise Communications Server Release 6 Maintenance for R6r*.

Label Cables

To make reconnecting the cables simpler and more reliable, label both ends of the connector cables associated with the carrier to be removed.

Power Down G2 System

At the power distribution unit, set the main circuit breaker to OFF.

Install Power-Failure Transfer Ground Wire

CAUTION:
To avoid contaminating single-point ground, do not connect the ground wire while the system is powered up.

1. Connect 1 end of a 10 AWG (#25) (2.6 mm) wire either to pin 49 of the connecting block or to pin 49 of the CAP (cable access panel) associated with the power-failure transfer panel.
2. Route the opposite end of the wire to an approved ground source and connect.

Disconnect Cables

1. With the cable retainer in front of you and the part number visible (4B or 4C), locate the slot that is almost vertical. This slot is adjacent to the part number. Insert a flat blade screwdriver with a 1/4-inch blade into the slot and twist. The retainer will snap open easily. Remove the cable.
2. Disconnect previously labeled cables associated with the carrier to be removed.
3. Behind a “DEFINITY style” cabinet, remove the back doors from the cabinet.
4. Behind a previously upgraded cabinet, remove all of the back panels. (Two different types of screws hold the back panels to the cabinet. The #10 screws can be removed with a screwdriver or a 1/4-inch socket. The #12 screws can be removed with a screwdriver or a 5/16-inch socket.)

Remove Circuit Packs from Module Control Carriers A and B

1. To ensure that power units in the “A” and “B” carriers are properly replaced, label each power unit with its slot number.
2. Disconnect the power cords from the power units in the “A” and “B” carriers.
3. Remove all circuit packs and power units from carrier “A.” Store the circuit packs in the static-proof packaging.
4. Remove all circuit packs from carrier “B.” Store the circuit packs in the static-proof packaging.
5. Remove the circuit pack blanks from slots that do not contain circuit packs.
6. Remove the front trim plate from the “B” carrier by pulling straight off. Then remove the front trim plate from the “A” carrier.

Remove CURL from Module Control Carrier A

Remove the CFY1 current limiter (CURL) from the pin-field block marked "CURL" on the "A" carrier. The CURL will be reused in the DEFINITY ECS Release 6 EPN.

NOTE:
Note the position of the components on the left side of the CURL.

NOTE:
Verify that the CURL meets the minimum usable vintage requirements.

Remove Module Control Carriers A and B

1. Remove the TDM/LAN cable from between the "A" and "B" carriers. See Figure 5-24. This cable will be reused.
2. Disconnect 1 end of the TDM/LAN cable (between the "A" and "D" carriers) from the "A" carrier. Leave the other end connected to the "D" carrier, and move the cable into a position so that it will not interfere with removing the "A" carrier.

   NOTE:
   Note the position of the TDM/LAN cable before disconnecting.

3. Disconnect 1 end of the TDM/LAN cable (between the "B" and "C" carriers) from the "B" carrier. Leave the other end connected to the "C" carrier, and move the cable into a position so that it will not interfere with removing the "B" carrier.

   CAUTION:
   When removing the TDM/LAN cables from a previously upgraded carrier, be careful that none of the short pieces of shrink tubing come off the 4 corner pins of the pin-field block. Otherwise, when the new equipment is connected, -48 volts could short to ground.

4. Remove and retain the 8 ground straps from between the "A" and "B" carriers. See Figure 5-25.
5. Disconnect 1 end of the 8 ground straps from between the "A" and "D" carriers. These straps will reconnect to the new "A" carrier.
6. Disconnect 1 end of the 8 ground straps from between the "B" and "C" carriers. These straps will reconnect to the new "B" carrier.
7. Disconnect the "P1" (small 9-pin) connector and the "P2" (large 38-pin) connector from the "A" carrier. See Figure 5-26. Move the cables into a position where they will not interfere with removing the carrier.

8. Slide the latch up, and disconnect the “P1” (small 9-pin) connector from the “B” carrier. Move the cable into a position where it will not interfere with removing the carrier.
9. Disconnect and remove the ICC cables. See Figure 5-24. They will not be reused.
10. Remove the fan trim plate by pulling straight off.
11. Clean or replace the air filter (403326820) if necessary.
12. In front of carrier, remove the 4 screws (top 2 first) holding the “B” carrier to the cabinet frame. Use a long-handle screwdriver or 5/16-inch socket with a 10-inch extension.
13. Behind the carrier, remove the 2 screws holding the “B” carrier’s rear connector panel to the cabinet frame.
14. Slide the carrier forward 1 to 2 inches; then, from the back, be sure that no cables or wiring harnesses are caught on the cabinet/carrier framework.

   CAUTION:
   Cables and wiring harnesses can be damaged if they catch on the framework and if too much pressure is applied in removing the carrier.

15. Remove the carrier by sliding it out the front of the cabinet.
16. Repeat Steps 12 through 15 for the “A” carrier.
17. On port carrier J58890BB-1, connect the TDM cable or the TDM terminator to Slot 02. On port carriers J58890BB-2 and J58890BB-3, connect the TDM cables or the TDM terminator to Slot 01. If the port carrier has J58890BB-1 *and* J58890BB-2 printed on it, treat it as a J58890BB-1.

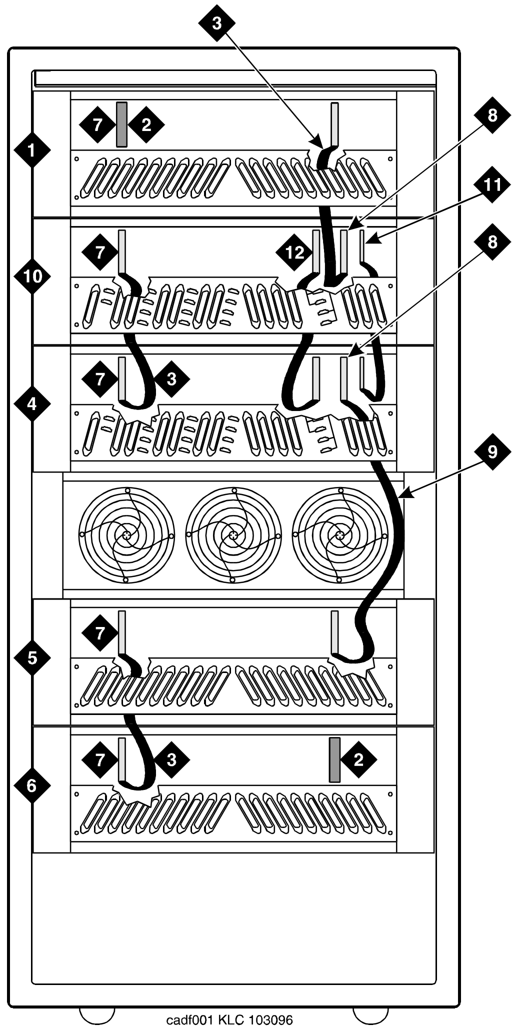


Figure Notes

1. Port Carrier (“C” Position)
2. ZAHF4 TDM/LAN Terminator
3. TDM/LAN Cable (WP91716 L6)
4. Module Control Carrier (“A” Position)
5. Port Carrier (“D” Position)
6. Port Carrier (“E” Position)
7. Slot 21
8. Slot 01
9. TDM/LAN Cable (WP91716 L7)
10. Duplicated Module Control Carrier (“B” Position)
11. ICCA Cable (Slot 03)
12. ICCB Cable

Figure 5-23. TDM/LAN Connections for Duplicated G2 Universal Module

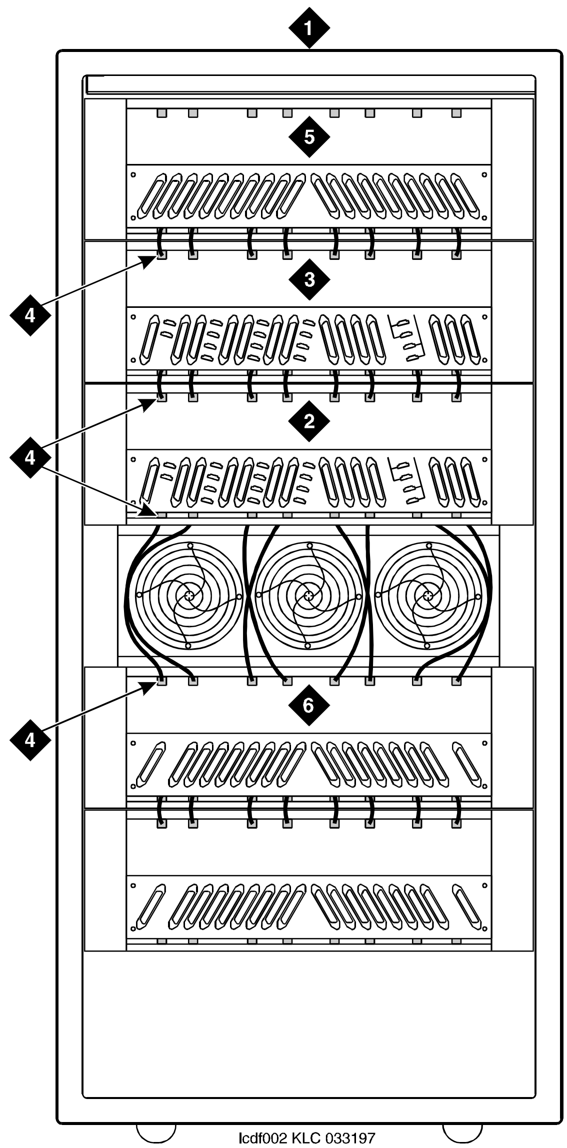
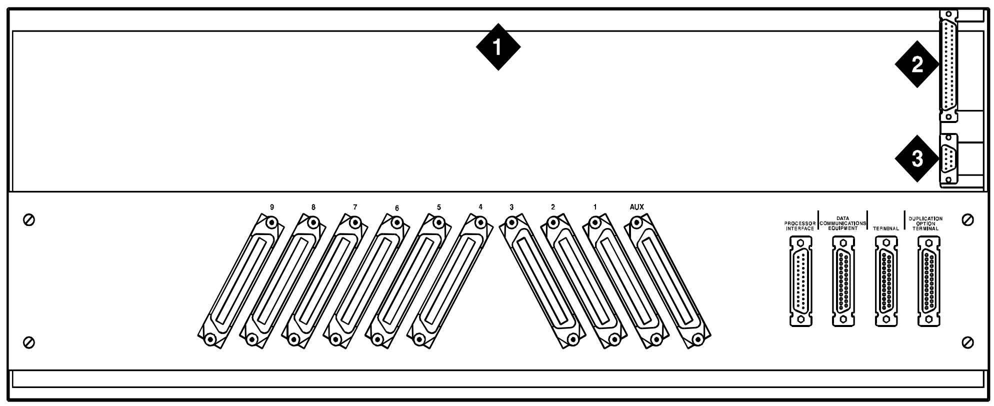


Figure Notes

1. Rear of Cabinet
2. Module Control Carrier (“A” Position)
3. Expansion Module Control Carrier (“B” Position)
4. Ground Jumpers
5. Port Carrier (“C” Position)
6. Port Carrier (“D” Position)

Figure 5-24. Locations of Ground Jumpers



crdfp12 KLC 101596

Figure Notes

1. Rear of Control Carrier
2. P2 Connector
3. P1 Connector

Figure 5-25. Location of P1 and P2 Connectors

Prepare the New A and B Position Carriers

1. Inspect the new carriers for any damage. Verify that the backplane pins are not bent.
2. Place the expansion control carrier on the floor so that the rear of the carrier faces up.
3. Install the CFY1 current limiter (CURL) on the “A” carrier to the pin-field block marked “CURL.” The CURL is inserted with the components on the left side as viewed from the rear.
4. At the rear connector panel, determine which connectors will have a cable attached, and install a 4B cable retainer on each of these connectors.

Install the New A and B Position Carriers

1. Install the J58890AF Expansion Control Carrier in position “A” by lining up the plastic alignment tips on the top rear of the carrier with the screw holes in the cabinet. These alignment tips will support the carrier while the screws are being replaced. Ensure that the power cords are properly placed in the slots at the sides of the carrier.
2. Fasten the carrier into position with 4 self-tapping screws saved from the removal of the old carrier.

   CAUTION:
   Carefully realign the threads on the self-tapping screws by turning them counterclockwise 1 turn before tightening them to avoid stripping the threads out of the framework.

3. Behind the carrier in a “DEFINITY style” cabinet, replace the 2 screws saved from the removal of the old carrier.
4. Install the J58890BB-3 port carrier in position “B” by lining up the plastic alignment tips on the top rear of the carrier with the screw holes in the cabinet. These alignment tips support the carrier while the screws are being replaced. Ensure the power cords are properly placed in the slots at the sides of the carrier.
5. Fasten the carrier into position with 4 self-tapping screws saved from the removal of the old carrier.
6. Connect the “P2” and “P1” (large and small) connectors to the “A” carrier. Snap the connector lock into place to ensure the connection is properly made. See Figure 5-26.
7. Connect the “P1” (small) connector to the “B” carrier. To get enough slack in the cables, cut the tie wrap holding the intercabinet cables from the upright in the area of the carrier being installed. Snap the connector lock into place to ensure the connection is properly made.
8. Connect the 8 ground straps from the “D” carrier to the new “A” carrier. See Figure 5-25. These straps were left connected to the “D” carrier.
9. Connect the 8 ground straps from the “C” carrier to the new “B” carrier. These straps were left connected to the “C” carrier.
10. Install the 8 ground straps between the new “A” and “B” carriers. These straps were removed from the old carriers.
11. For an AC-powered expansion control carrier, install the 2 new carrier ground straps. One strap connects ground point “1” to the A-carrier frame (on the right side), and the other connects ground point “8” to the A-carrier frame (on the left side).

    NOTE:
    DC-powered carriers do not use these carrier ground straps.

12. Connect the loose end of the TDM/LAN cable (between the “A” and “D” carriers) to the pin-field block marked “TDM” on the right side of the “A” carrier (see Figure 5-27 and Table 5-11). The other end remained connected to the “D” carrier when the old carrier was removed.
13. Connect the loose end of the TDM/LAN cable (between the “B” and “C” carriers) to the pin-field block marked “TDM” on the right side of the “B” carrier. The other end remained connected to the “C” carrier when the old carrier was removed.
14. Install the TDM/LAN cable between the “A” and “B” carriers. The cable is connected to the “A” and “B” carriers at the pin-field blocks marked “TDM” on the left side of each carrier.

Table 5-11. TDM/LAN Connections

"J" Number	Carrier Type	LHS Slot	RHS Slot
J58890BB-1	Port	21	02
J58890BB-2	Port	21	01
J58890BB-3	Port	21	01
J58890AF	EPN Control “A”	21	02

15. On port carrier J58890BB-1, connect the TDM cable or the TDM terminator to Slot 02. On port carriers J58890BB-2 and J58890BB-3, connect the TDM cables or the TDM terminator to Slot 01. If the port carrier has J58890BB-1 *and* J58890BB-2 printed on it, treat it as a J58890BB-1.

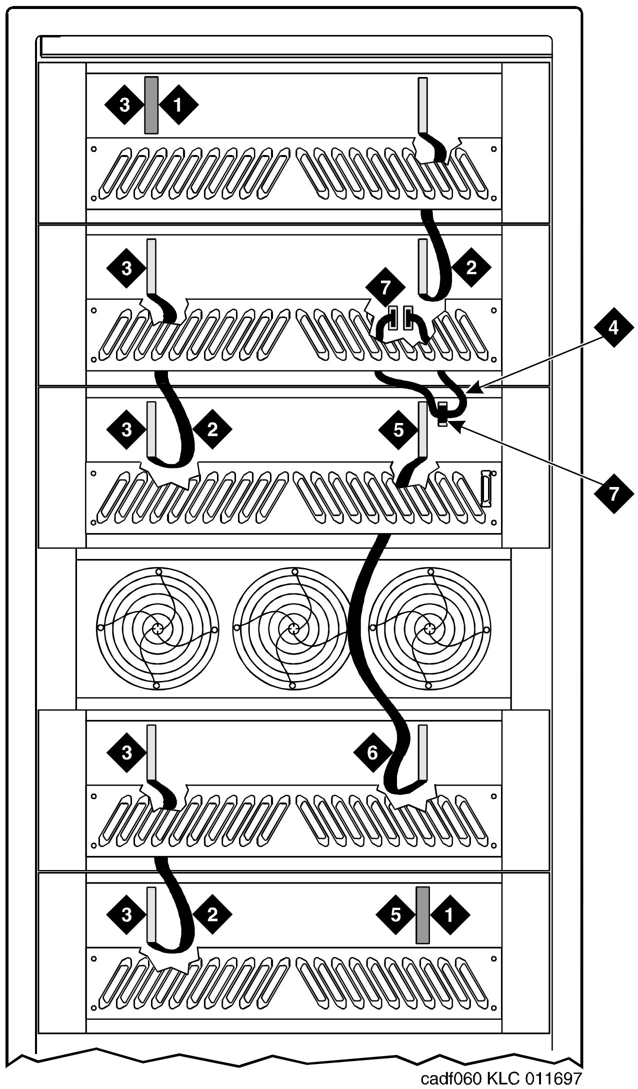


Figure Notes

1. ZAHF4 TDM/LAN Terminator
2. TDM/LAN Cable (WP91716 L6)
3. Slot 21
4. Inter-Carrier Cables (“A” and “B”) H600-204, G1
5. Slot 02
6. TDM/LAN Cable (WP91716 L7)
7. ICCA and ICCB Connectors)

Figure 5-26. TDM/LAN Connections for Critical Reliability Release 6 EPN

16. Install the front trim plates; first on the “A” carrier, and then on the “B” carrier.

17. Install the ICC cables (H600-204 G1) between carriers “A” and “B.” Connect the cables to the “ICC” pin-field block on both carriers (see Figure 5-28 and Figure 5-29 and Table 5-12). Install the cable so that the dark stripe is on the bottom at both ends.

    CAUTION:
    While installing the ICC cable connectors, be careful not to bend any backplane pins. Double check each connection to verify that the pins are straight.

18. Install the power units (removed from G2 universal module) into the “A” carrier. There are 4 different pairs of power units available. They are the 631AR1 and 631BR1, the 631WA1 and 631WB1, the 631DA1 and 631DB1, and the 644A and 645B.

    Do not interchange the physical locations of the units. Install the 631AR1, 631WA1, 631DA1 or 644A in the left side. Install the 631BR1, 631WB1, 631DB1 or 645B in the right side.

19. If the expansion control carrier contains a 631BR1, 631WB1, or 645B power unit, install the previously removed TN736 power unit in port slots “18” and “19” of the carrier (adjacent to the 631BR1, 631WB1, or 645B). If the system contains neon message waiting, a TN752 or TN755 power unit must be used.

    NOTE:
    The TN736 is not required when the 631DB1 or 645B power unit is used in the J58890AH control carrier or the J58890BB-2 or J58890BB-3 port carriers. It is required in the J58890BB-1 port carrier regardless of which 631 power unit is provided. Use the TN752 or TN755 if the system is equipped with neon message waiting.

20. Connect the power cords to the power units. The power cords are the white cables equipped with plugs that are run through the slots in the front of each carrier.

Table 5-12. Intercarrier Cable Connections

Connect ICC Cables				
	From		To	
	Carrier	Pin-Field Block	Carrier	Pin-Field Block
EPN	J58890AF	ICCA ICCB	J58890BB	ICCA ICCB

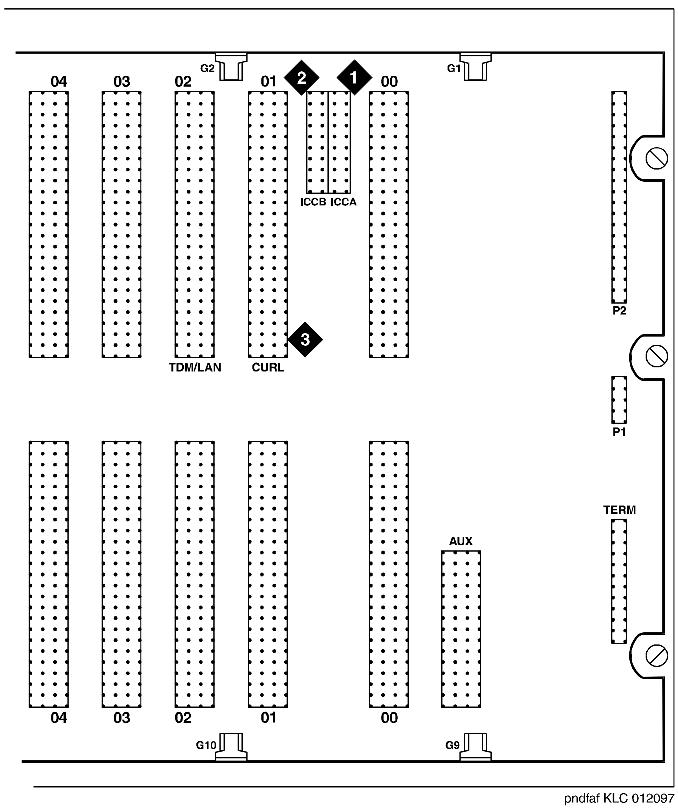


Figure Notes

1. ICCA Connectors
2. ICCB Connectors
3. CURL (Current Limiter) Connectors

Figure 5-27. ICC Connections for the Expansion Control Carrier

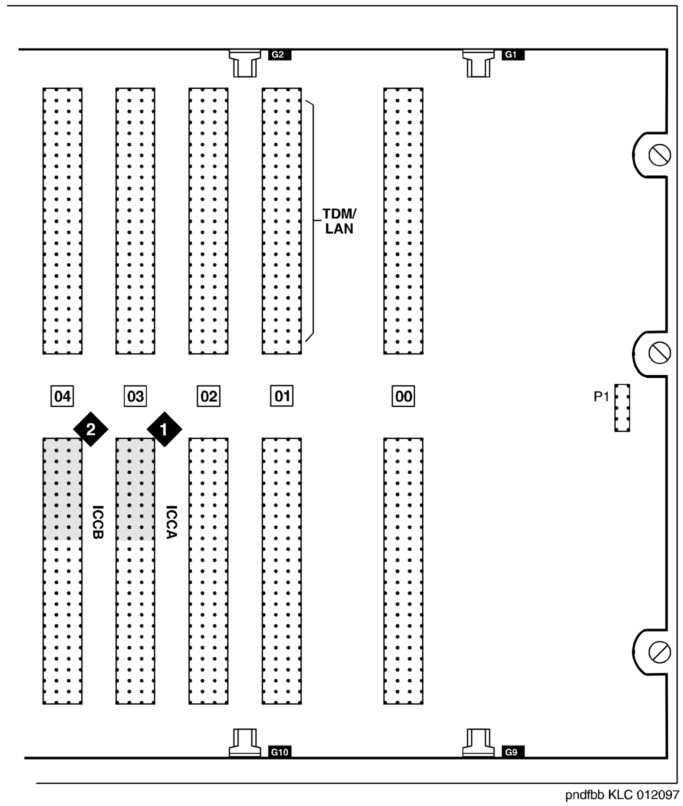


Figure Notes

1. ICCA Connectors
2. ICCB Connectors

Figure 5-28. ICC Connections for the Port Carrier

Test the CURL

1. Plug the cabinet power cord into the appropriate receptacle.
2. At the power distribution unit, set the main circuit breaker to ON.
3. Unplug the power cord from the power unit “B” (right-hand side) in the “A” carrier.
4. The fans must be running. If not, check the installation of the CURL.
5. Reconnect the power cord to the power unit in the “A” carrier, then unplug the power cord from power unit “B” (right-hand side) in the “B” carrier.
6. The fans must be running. If not, check the installation of the CURL.

7. Reconnect the power cord to the power unit in the “B” carrier.
8. At the power distribution unit, set the main circuit breaker to OFF.

Install Circuit Packs

1. Install the new Release 6 control circuit packs into carriers “A” and “B.” Use the new decal and the annotated “list configuration all” (provided with the Release 6 translation card) as a guide.

   NOTE:
   Currently, both TN768 Tone Clock circuit packs reside in port slots of the universal module being upgraded. As part of this step, relocate these circuit packs to the “TONE CLOCK” slot of carrier “A” and port slot “1” of carrier “B.”

2. For a directly-connected critical reliability Release 6 system with 2 port networks, ensure that the PPN and this EPN are both equipped with 2 TN776 or TN570 Expansion Interface circuit packs.

   For a directly-connected system with 3 port networks, ensure that the PPN and each EPN have 4 TN776s or TN570s.

Interconnect Port Networks — Critical Reliability

Fiber optic cabling terminated to 9823A lightwave transceivers can interconnect PNs up to 4,900 feet (1493 m) apart. Fiber optic cabling terminated to 9823B lightwave transceivers can interconnect PNs up to 25,000 feet (7620 m) apart.

NOTE:
These distance limits are approximate measurements of the *actual* fiber right-of-way (not of the shortest linear distance) between the 2 endpoints.

NOTE:
It is important to label every cable that you install.

NOTE:
Keep track of which fiber attaches to which connector on each lightwave transceiver. This section provides figures offering the suggested way of making these connections.

The connectors on the lightwave transceivers are labeled either “TX” (transmit) or “RX” (receive), while the fibers attached to each connector are numbered either “1” or “2.” A viable fiber connection is only made when both fibers in each cable (“1” and “2”) route from the “TX” connector of a port network to the “RX” connector of its adjacent port network. For an example, refer to Figure 5-30 on page 5-83.

NOTE:
When finished, refer to Appendix A, ''Fiber Link Administration'' to administer the fiber links.

Collocated Port Networks

For a critical reliability system with 1 collocated EPN, use 2 fiber optic cables and 4 lightwave transceivers to directly connect the networks. For a critical reliability system with 2 collocated EPNs, use 6 fiber optic cables and 12 lightwave transceivers to directly connect the networks.

NOTE:
Based on floor-plan considerations, the length of these cables may vary. Twenty-foot (6.1 m) cables are normally adequate for a Release 6 with 2 port networks.

For collocated cabinets, the fiber optic cables should be routed directly from the PPN to the EPN cabinet. If a "DEFINITY style" PPN cabinet is collocated with another "DEFINITY style" EPN cabinet, route the cables *up* the cable tray and out the top of the PPN cabinet. The cables are then run to the other cabinet, through the top of the cabinet, and down the cable tray to the desired carrier level.

If a "DEFINITY style" PPN cabinet is collocated with either a small cabinet, medium cabinet, or single-carrier cabinet stack, route the cables *down* the cable tray and out the bottom of the PPN cabinet. The cables are then run to the EPN cabinet and up the outside of the rear panels to the desired carrier level.

Fiber-Remoted Port Networks

For a critical reliability system with 1 fiber-remoted EPN, use 4 fiber optic cables, 4 lightwave transceivers, and 4 lightguide interconnect units (provided by the PSC). For a critical reliability system with 2 fiber-remoted EPNs, use 12 fiber optic cables, 12 lightwave transceivers, and 12 lightguide interconnect units (provided by the PSC).

For fiber-remoted cabinets, route the cables down the cable tray and out the bottom of the cabinet to the MDF to the lightguide interconnect units.

For Either 1 or 2 Collocated Expansion Port Networks

1. At control carrier A of PPN cabinet 1 (see Figure 5-29 through Figure 5-32):
   - Install a lightwave transceiver on the cable connector at slot 1A01.
   - Connect a fiber optic cable to the transceiver just installed.
   - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
2. Behind control carrier A of EPN cabinet 2:
   - Install a lightwave transceiver on the cable connector at slot 2A01.
   - Connect the other end of the fiber cable to the transceiver just installed.
   - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
   - At the top of the cabinet, coil the surplus fiber optic cable and attach it to the wall of the cable tray.
3. Behind control carrier B of PPN cabinet 1:
   - Install a lightwave transceiver on the cable connector at slot 1B01.
   - Connect a fiber optic cable to the transceiver just installed.
   - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
4. Behind port carrier B of EPN cabinet 2:
   - Install a lightwave transceiver on the cable connector at slot 2B02.
   - Connect the other end of the fiber cable to the transceiver just installed.
   - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
   - At the top of the cabinet, coil the surplus fiber optic cable and attach it to the wall of the cable tray.

For 2 Collocated Expansion Port Networks

1. Behind control carrier A of PPN cabinet 1:
   - Install a lightwave transceiver on the cable connector at slot 1A02.
   - Connect a fiber optic cable to the transceiver just installed.
   - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
2. Behind control carrier A of EPN cabinet 3:
   - Install a lightwave transceiver on the cable connector at slot 3A01.

- Connect the other end of the fiber cable to the transceiver just installed.
- Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
- At the top of the cabinet, coil up the surplus fiber optic cable and attach it to the wall of the cable tray.

3. Behind control carrier B of PPN cabinet 1:
   - Install a lightwave transceiver on the cable connector at slot 1B02.
   - Connect a fiber optic cable to the transceiver just installed.
   - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
4. Behind port carrier B of EPN cabinet 3:
   - Install a lightwave transceiver on cable connector at slot 3B02.
   - Connect the other end of the fiber optic cable to the lightwave transceiver, just installed, at slot 3B02.
   - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
   - At the top of the cabinet, coil up the surplus length of fiber optic cable, and carefully attach the coil to the wall of the cable tray.
5. Behind control carrier A of EPN cabinet 2:
   - Install a lightwave transceiver on cable connector at slot 2A02.
   - Connect 1 end of the fiber optic cable to the lightwave transceiver, just installed, at slot 2A02.
   - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
6. Behind control carrier A of EPN cabinet 3:
   - Install a lightwave transceiver on cable connector at slot 3A02.
   - Connect the other end of the fiber optic cable to the lightwave transceiver, just installed, at slot 3A02.
   - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
   - At the top of the cabinet, coil the surplus fiber optic cable, and carefully attach the coil to the wall of the cable tray.
7. Behind port carrier B of EPN cabinet 2:
   - Install a lightwave transceiver on cable connector at slot 2B03.
   - Connect 1 end of the fiber optic cable to the lightwave transceiver, just installed, at slot 2B03.

- Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.

8. Behind port carrier B of EPN cabinet 3:
   - Install a lightwave transceiver on cable connector at slot 3B03.
   - Connect the other end of the fiber optic cable to the lightwave transceiver, just installed, at slot 3B03.
   - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
   - At the top of the cabinet, coil the surplus fiber optic cable, and carefully attach the coil to the wall of the cable tray.

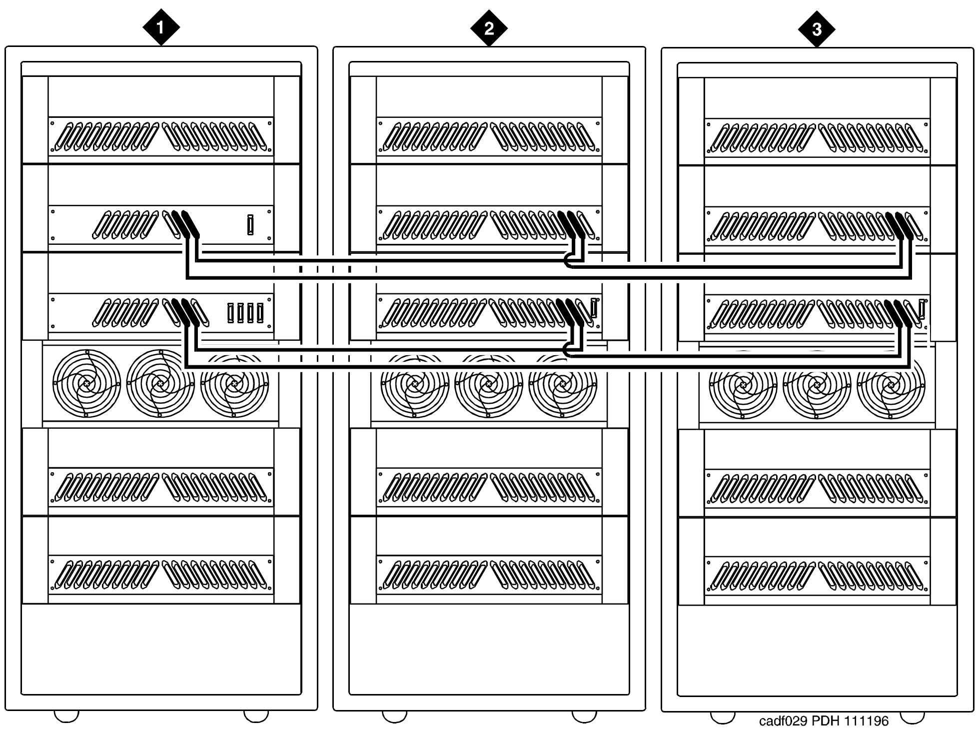


Figure Notes

3. Cabinet 1 PPN
4. Cabinet 2 EPN 1
5. Cabinet 3 EPN 2

Figure 5-29. Critical Reliability Release 6 with 2 or 3 Port Networks

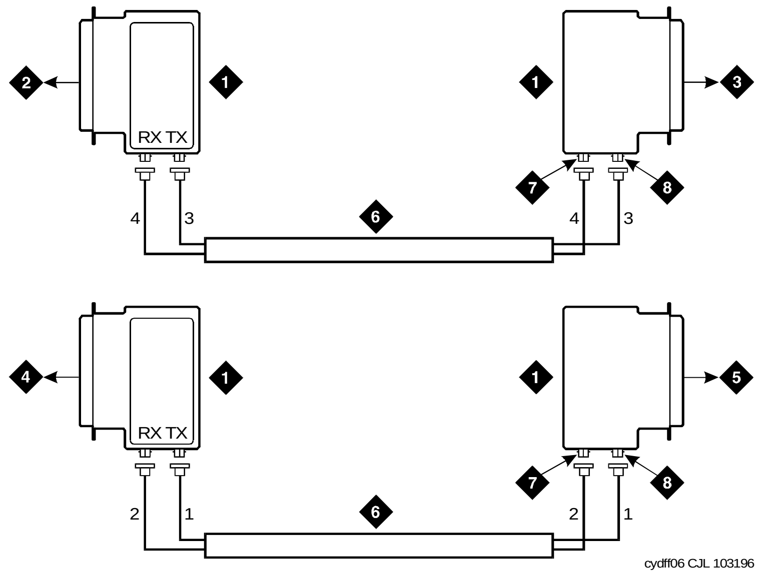


Figure Notes

1. Lightwave Transceiver
2. To PPN Carrier A Slot 1A01
3. To EPN1 Carrier A Slot 2A01
4. PPN Carrier B Slot 1B01
5. EPN1 Carrier B Slot 2B02
6. Fiber Optic Cable
7. TX Connector
8. RX Connector

Figure 5-30. Fiber Optic Connections PPN to EPN1

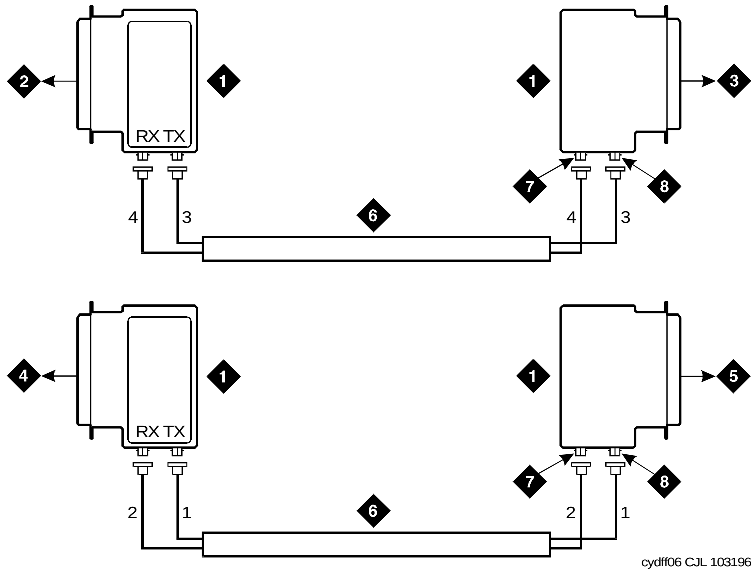


Figure Notes

1. Lightwave Transceiver
2. To PPN Carrier A Slot 1A02
3. To EPN2 Carrier A Slot 3A01
4. To PPN Carrier B Slot 1B02
5. To EPN2 Carrier A Slot 3A01
6. Fiber Optic Cable
7. TX Connector
8. RX Connector

Figure 5-31. Fiber Optic Connections PPN to EPN2

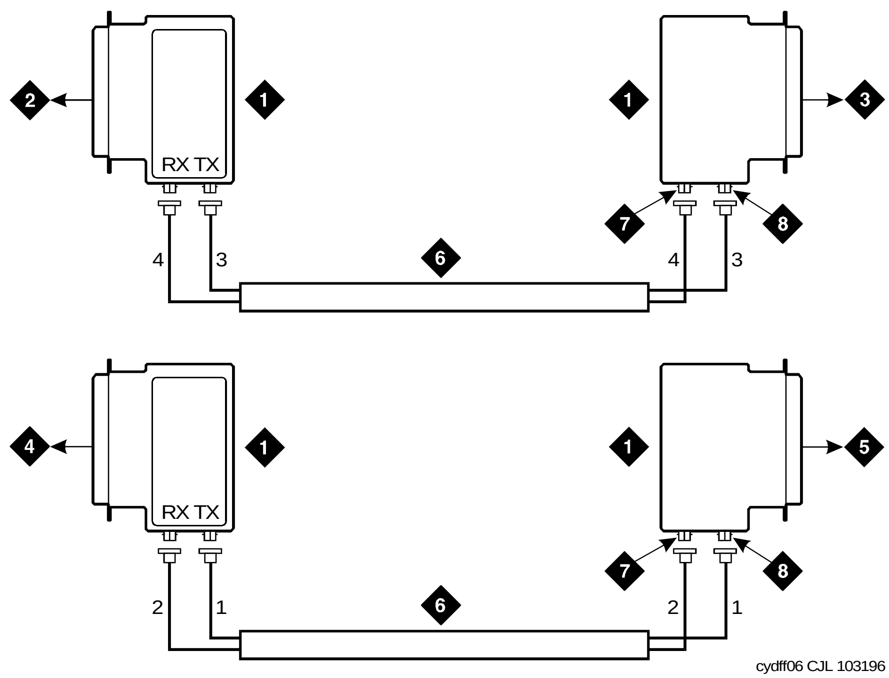


Figure Notes

1. Lightwave Transceiver
2. To EPN1 Carrier A Slot 2A02
3. To EPN2 Carrier A Slot 3A02
4. To EPN1 Carrier B Slot 2B03
5. To EPN2 Carrier B Slot 3B03
6. Fiber Optic Cable
7. TX Connector
8. RX Connector

Figure 5-32. Fiber Optic Connections EPN1 to EPN2

For Either 1 or 2 Fiber-Remoted Expansion Port Networks

1. Behind control carrier A of PPN cabinet 1 (see Figure 5-34 through Figure 5-36):
   - Install a lightwave transceiver on the cable connector at slot 1A01.
   - Connect a fiber optic cable to the transceiver just installed.
   - Route the cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
   - Connect the fiber cable to the lightguide interconnect unit provided.
   - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
2. Behind control carrier A of EPN cabinet 2:
   - Install a lightwave transceiver on the cable connector at slot 2A01.
   - Connect the fiber optic cable to the lightwave transceiver slot 2A01.
   - Route the cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
   - Connect the fiber cable to the lightguide interconnect unit provided.
   - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
   - Coil the surplus fiber optic cable and place it in the cable manager.
3. Behind control carrier B of PPN cabinet 1:
   - Install a lightwave transceiver on the cable connector at slot 1B01.
   - Connect a fiber optic cable to the transceiver just installed.
   - Route the cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
   - Connect the fiber cable to the lightguide interconnect unit provided.
   - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
4. Behind port carrier B of EPN cabinet 2:
   - Install a lightwave transceiver on the cable connector at slot 2B02.
   - Connect the fiber optic cable to the transceiver just installed.
   - Route the cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
   - Connect the fiber cable to the lightguide interconnect unit provided.
   - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
   - Coil the surplus fiber optic cable and place it in the cable manager.

For Two Fiber-Remoted Expansion Port Networks

1. Behind control carrier A of PPN cabinet 1:
   - Install a lightwave transceiver on the cable connector at slot 1A02.
   - Connect a fiber optic cable to the transceiver just installed.
   - Route the cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
   - Connect the fiber cable to the lightguide interconnect unit provided.
   - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
2. Behind control carrier A of EPN cabinet 3:
   - Install a lightwave transceiver on cable connector at slot 3A01.
   - Connect the fiber optic cable to the transceiver just installed.
   - Route the fiber cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
   - Connect the fiber cable to the lightguide interconnect unit provided.
   - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
   - Coil the surplus fiber optic cable and place it in the cable manager.
3. Behind control carrier B of PPN cabinet 1:
   - Install a lightwave transceiver on cable connector at slot 1B02.
   - Connect a fiber optic cable to the transceiver just installed.
   - Route the cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
   - Connect the fiber cable to the lightguide interconnect unit provided.
   - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
4. Behind port carrier B of EPN cabinet 3:
   - Install a lightwave transceiver on the cable connector at slot 3B02.
   - Connect the fiber optic cable to the transceiver just installed.
   - Route the cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
   - Connect the fiber cable to the lightguide interconnect unit provided.
   - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
   - Coil up the surplus fiber cable and place it in the cable manager.
5. Behind control carrier A of EPN cabinet 2:

- Install a lightwave transceiver on the cable connector at slot 2A02.
- Connect a fiber optic cable to the transceiver just installed.
- Route the cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
- Connect the fiber cable to the lightguide interconnect unit provided.
- Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.

6. Behind control carrier A of EPN cabinet 3:
   - Install a lightwave transceiver on the cable connector at slot 3A02.
   - Connect the fiber optic cable to the transceiver just installed.
   - Route the fiber cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
   - Connect the fiber cable to the lightguide interconnect unit provided.
   - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
   - Coil up the surplus fiber cable and place it in the cable manager.
7. Behind port carrier B of EPN cabinet 2:
   - Install a lightwave transceiver on the cable connector at slot 2B03.
   - Connect a fiber optic cable to the transceiver just installed.
   - Route the fiber cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
   - Connect the fiber cable to the lightguide interconnect unit provided.
   - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
8. Behind port carrier B of EPN cabinet 3:
   - Install a lightwave transceiver on the cable connector at slot 3B03.
   - Connect the fiber cable to the transceiver just installed.
   - Route the fiber cable to the cable tray and down, out of the cabinet, through the cable manager to the PDS cross-connect facility.
   - Connect the fiber cable to the lightguide interconnect unit provided.
   - Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable tie positions.
   - Coil up the surplus fiber cable and place it in the cable manager.

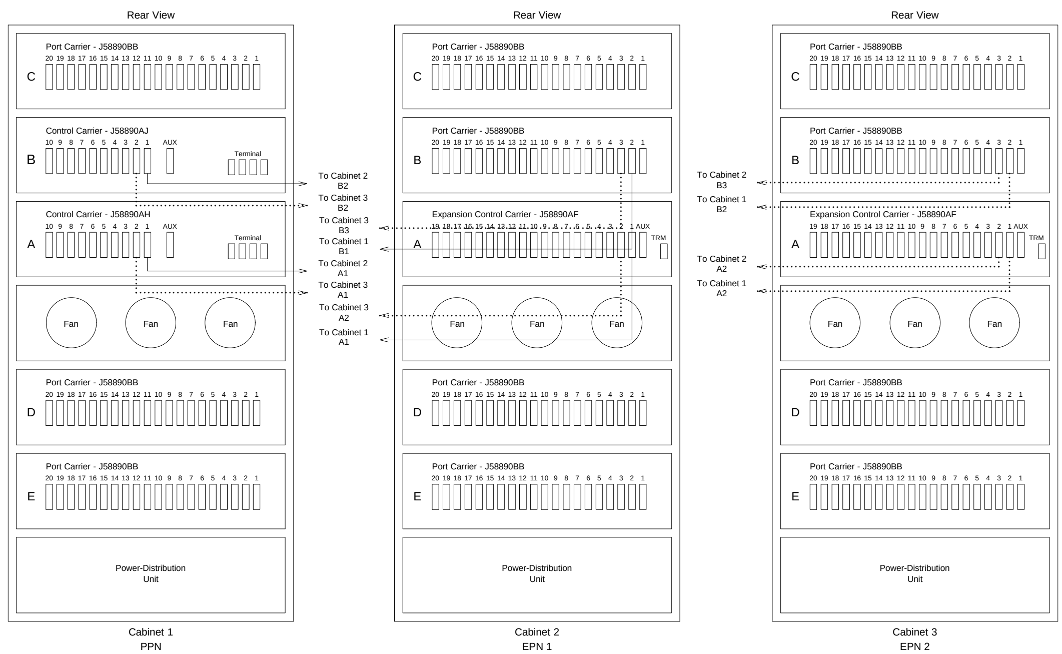


Figure 5-33. Critical Reliability Release 6 with 2 or 3 Port Networks

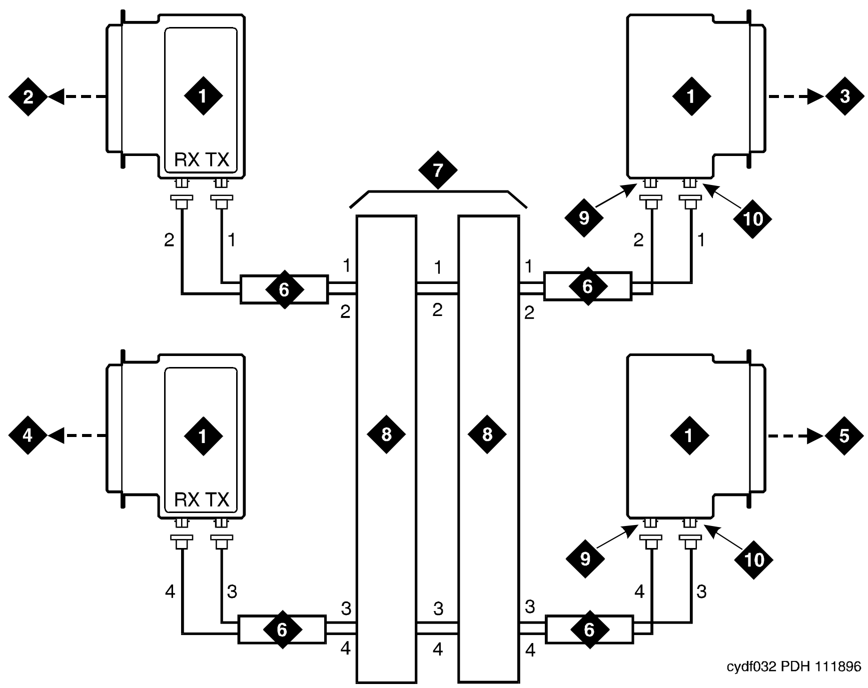


Figure Notes

1. Lightwave Transceiver
2. To PPN Carrier A Slot 1A01
3. To EPN1 Carrier A Slot 2A01
4. To PPN Carrier B Slot 1B01
5. To EPN1 Carrier B Slot 2B02
6. Fiber Optic Cable
7. Optical Cross-Connect Facility
8. 100A Lightguide Interconnect Unit
9. TX Connector
10. RX Connector

Figure 5-34. Fiber Optic Connections PPN to EPN1

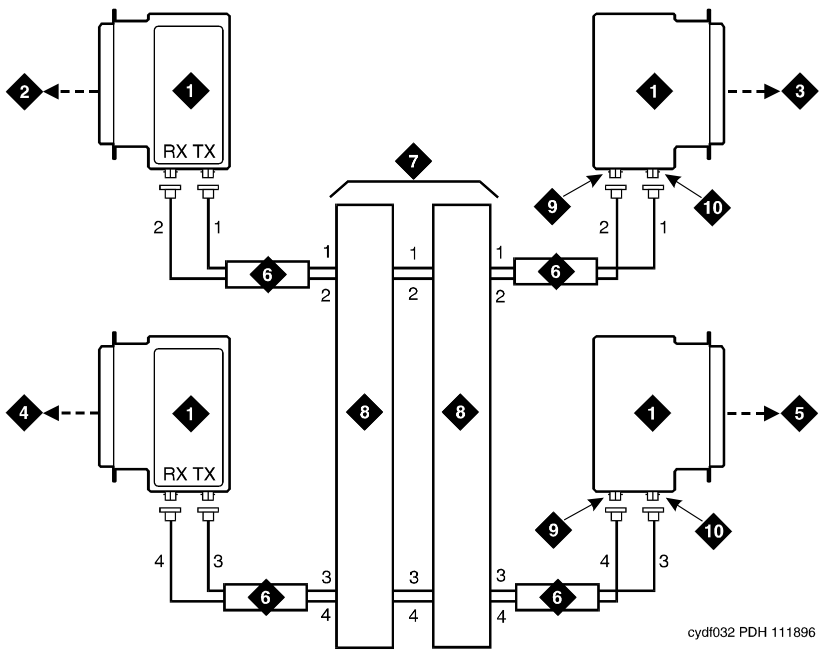


Figure Notes

1. Lightwave Transceiver
2. To PPN Carrier A Slot 1A02
3. To EPN2 Carrier A Slot 3A01
4. To PPN Carrier B Slot 1B02
5. To EPN2 Carrier B Slot 3B02
6. Fiber Optic Cable
7. Optical Cross-Connect Facility
8. 100A Lightguide Interconnect Unit
9. TX Connector
10. RX Connector

Figure 5-35. Fiber Optic Connections PPN to EPN2

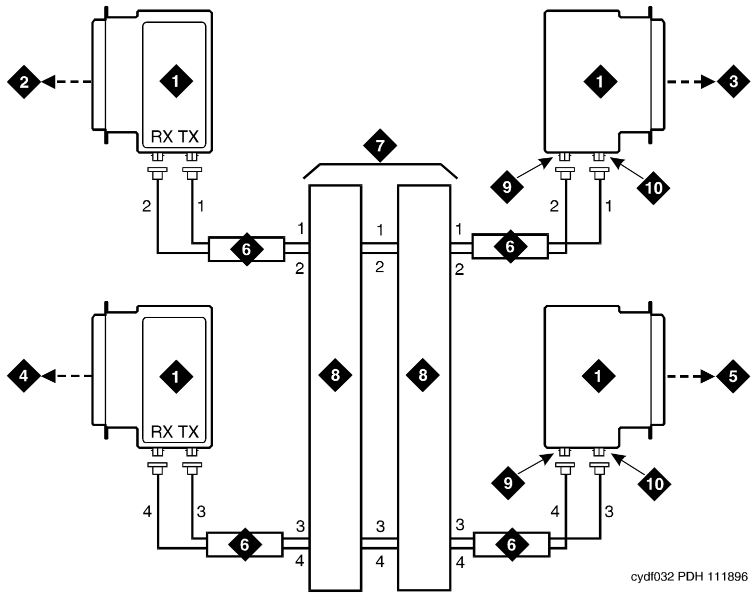


Figure Notes

1. Lightwave Transceiver
2. To PPN Carrier A Slot 1A02
3. To EPN2 Carrier A Slot 3A01
4. To PPN Carrier B Slot 1B02
5. To EPN2 Carrier B Slot 3B02
6. Fiber Optic Cable
7. Optical Cross-Connect Facility
8. 100A Lightguide Interconnect Unit
9. TX Connector
10. RX Connector

Figure 5-36. Fiber Optic Connections EPN1 to EPN2

Verify Usable Circuit Pack Vintages

Verify that each circuit pack reused in the upgrade conforms to the usable vintage requirements for a DEFINITY ECS Release 6 system (see Reference Guide for Circuit Pack Vintages and Change Notices).

Remove Power-Failure Ground Strap

Remove the ground strap from the power-failure transfer unit.

Boot the Release 6 System

1. Connect the management terminal to the “TERMINAL” connector behind PPN control carrier “A,” or install the G3-MA according to the “Set Up G3-MA” chapter of *DEFINITY Communications System Generic 3 Management Applications* — *Operations*, 585-229-202.
2. Insert the translation cards in the TN777B faceplates.
3. At each EPN power distribution unit, set the main circuit breaker to ON.
4. At the PPN power distribution unit, set the main circuit breaker to ON.
5. The system performs the reset level 4 rebooting process, loading the default system translations from the translation cards. This takes 8 to 11 minutes.
6. Get the order number of the upgrade and call the regional CSA to request an “init” login so the right-to-use options can be enabled.
7. Enter **set time**, and press Enter to set the time and ensure that the system is booted properly.
8. Enter **list configuration software-version long**, and press Enter to compare the version number of the Release 6 software program (displayed on the terminal) with the version number (written on a label on the processor’s faceplate). If the version numbers are not the same, change the version number on the processor label so that they agree.
9. Enter **change system-parameters customer-options**. Press Enter. Use this form to enable the G3 V6 option and to assign the customer’s other right-to-use options on the Release 6 upgrade order. See *DEFINITY Enterprise Communications Server Release 6 Administration and Feature Description*, for details on enabling these options.
10. Enter **change site-data**. Press Enter. Use this form to assign system-specific information (such as building, floor, stations, and so forth).
11. Enter **status system 1**, and press Enter to verify that the system is in the “active/standby” mode.
12. Enter **save translation**. Press Enter. This instructs the system to write all translation information from memory to the translation cards.

WARNING:
If the terminal screen displays “translation corruption detected; call Lucent Technologies distributor immediately”, an error was detected in the translations. Call your Lucent Technologies representative.

Close Upgraded EPN Cabinet and Reconnect Cables

1. At the upgraded EPN, set the main circuit breaker to OFF.

   NOTE:
   Powering down an EPN without powering down the PPN will set off alarms. However, these alarms should clear after power is restored to each EPN.

2. Temporarily disconnect the lightwave transceivers and fiber optic cables from the appropriate carriers.
3. Replace the back doors or back panels previously removed.
4. At the EPN cabinet, reconnect the lightwave transceivers, fiber optic cables, and the connector cables associated with the carrier being replaced.
5. Install the front door on the EPN cabinet.

Power Up the EPN Cabinets

1. At each EPN power distribution unit, set the main circuit breaker to ON. After about 40 seconds, EPN power and PPN/EPN communications return.
2. After power returns to each EPN and all trouble is cleared, verify that the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal mode.

Retranslate Port Circuits

If port circuit packs were relocated in order to put:

- A critical port circuit pack, requiring longer nominal battery holdover (such as a DS1 or an Announcement circuit pack), in a port slot
- A TN736, TN752, or TN755 power supply in port slots “18” and “19”
- A TN776 or TN570 Expansion Interface in port slot “1”
- A TN776 or TN570 in port slot “2” (for a second directly connected EPN)

of the new expansion control carrier, verify that they were retranslated during the off-site software upgrade. If not, they must be retranslated now. Refer to *DEFINITY Enterprise Communications Server Release 6 Administration and Feature Description*.

Enable TTI

1. Enter **change system-parameters features** and press Enter.
2. Use page 2 of the form to change the TTI field back to `y`.

Enable Scheduled Maintenance

Enter **change system-parameters maintenance**, and press Enter. Enable the scheduled daily maintenance.

Resolve Alarms

Examine the alarm log. Resolve any alarms that may exist using *DEFINITY Enterprise Communications Server Release 6 Maintenance for R6vs/si or DEFINITY Enterprise Communications Server Release 6 Maintenance for R6r*.

Enable Customer Options and Alarm Origination

1. Get the DOSS order number of the upgrade and call the regional CSA to request an “init” login. The CSA assigns the Release 6 option, which automatically sets the 24-hour password aging for the customer logins.
2. Enter **change system-parameters customer-options** and press Enter.
3. Use these forms to verify the customer options are properly set.

   NOTE:
   If the customer was using Supplementary Services Protocol “b” or “d” on an ISDN-PRI trunk group before the upgrade, set the `Basic Call Setup` field to `y`.

4. Set the `Offer Category` field to **A**.
5. Set the `Activate Offer` field to **y** and press Enter.
6. Be sure the system is part of the existing INADS database by calling the INADS Database Administrator at the Technical Service Center (TSC). Verify that INADS can dial into the system and that the system can dial out to INADS.

   As part of the system registration process, the INADS Database Administrator enables Alarm Origination and customer options.

Save Translations

1. Enter **save translation** and press Enter to get upgraded translations onto disk. If the translations were corrupted during the upgrade, the following error message displays when logging in:

   WARNING:
   Translation corruption detected; call Lucent Technologies distributor immediately.

   NOTE:
   The **save translation** command cannot function if the translation corruption message appears. See ''Troubleshooting Upgrade Problems'' on page B-1.

Back Up Disk

1. Enter **backup disk** and press Enter to backup all changed files.
2. Enter **test stored-data long** and press Enter. This instructs the system to verify the consistency of the MSS files (on the disk and tape).

Return Replaced Equipment

Return replaced equipment to Lucent Technologies according to the requirements outlined in:

BCS/Material Logistics, MSL/Attended Stocking Locations

Methods and Procedures for Basic Material Returns

Adding or Removing Cabinet Hardware

6

This chapter contains information to add or remove cabinet hardware. To install adjunct or peripheral equipment, refer to *DEFINITY Enterprise Communications Server Release 6 Installation for Adjuncts and Peripherals*.

To add fiber optic cables to an existing system, refer to *DEFINITY Enterprise Communications Server Release 6 Installation and Test for Multi-Carrier Cabinets.*

Single-Mode Fiber Attenuators

Attenuators may be required when using single-mode fiber. See the table below.

106060718	5 dB attenuator	2 for each fiber connection
106060734	10 dB attenuator	2 for each fiber connection
106061021	15 dB attenuator	2 for each fiber connection

A different value attenuator may be required even though the fiber span is between the same 2 cabinets (local and remote cabinet). Refer to *DEFINITY Enterprise Communications Server Release 6 Installation and Test for Multi-Carrier Cabinets* for detailed fiber attenuator information.

Install a New EPN Cabinet in an Existing System

Figure 6-1 shows a typical Multi-Carrier EPN cabinet. Each EPN cabinet is normally positioned adjacent to the PPN cabinet but may be located remotely in a different room or a different building.

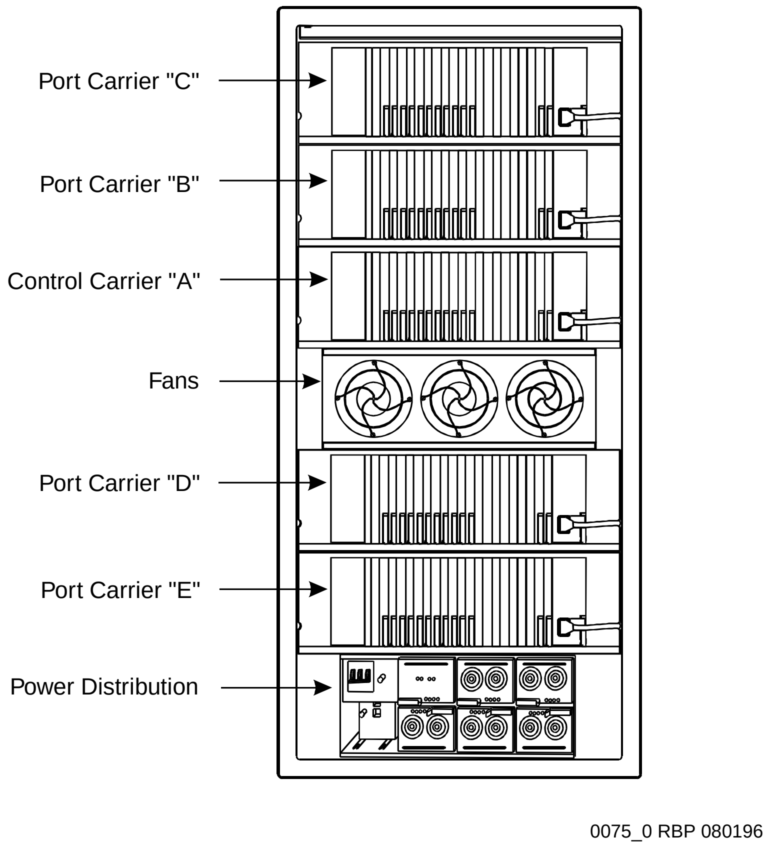


Figure 6-1. Typical Multi-Carrier EPN Cabinet

1. Uncrate and position the cabinet as instructed at the beginning of this chapter.
2. Install earthquake protection as instructed on page 1-9.

Connect Power and Ground

1. For an AC- or DC-powered system, connect power and ground to the cabinet as instructed in *DEFINITY Enterprise Communications Server Release 6 Installation and Test for Multi-Carrier Cabinets*.
2. Connect the approved ground to the new cabinet as instructed in *DEFINITY Enterprise Communications Server Release 6 Installation and Test for Multi-Carrier Cabinets.*

   NOTE:
   Do not power up the system until all power and ground connections are completed.

Interconnect Cabling Release 6si

For fiber optic cabling information and comcode numbers, refer to *DEFINITY Enterprise Communications Server Release 6 Installation and Test for Multi-Carrier Cabinets*. The fiber connections installed in this section are later administered using the fiber link administration instructions in Appendix A, ‘‘Fiber Link Administration’’.

NOTE:
Use multi-mode fiber transceivers and fiber optic cables between cabinets unless single-mode is required for distance restrictions.

Direct-Connect New EPN to Existing PPN (Standard Reliability)

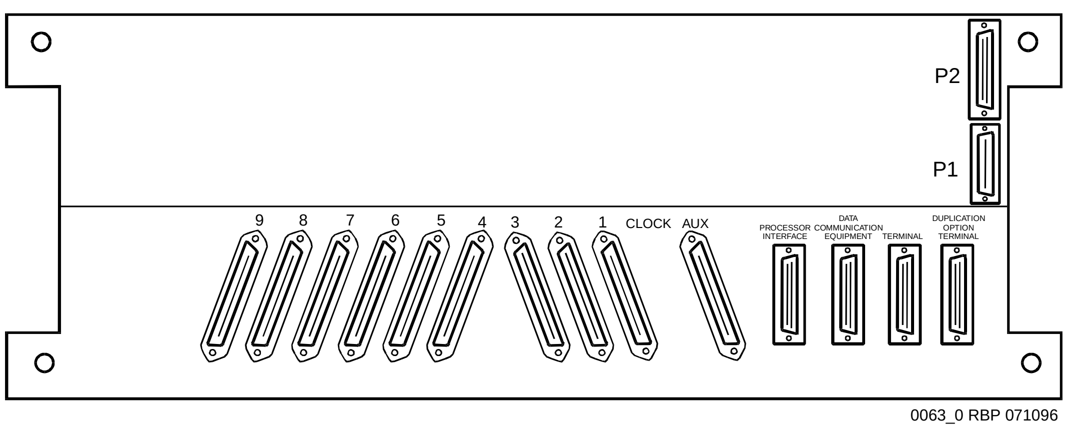


Figure 6-2. Rear of J58890AH Control Carrier (PPN)

1. Install a 9823A lightwave transceiver onto Slot 1 on the rear of the PPN Control Carrier. See Figure 6-2.
2. Connect a 20-foot fiber optic cable to the TX and RX connectors on the transceiver. Label the cable to make the connections to the EPN cabinet easier.
3. Route the fiber cable to the J58890AF Expansion Control Carrier in the EPN cabinet.
4. On the rear of the EPN Expansion Control Carrier, install a 9823A lightwave transceiver onto Slot 2.
5. Connect the 20-foot fiber optic cable from the PPN Control Carrier to the TX and RX connectors on the transceiver on the EPN Expansion Control Carrier. Be sure the cable connected to the TX connector on the PPN transceiver is connected to the RX connector on the EPN transceiver and vice versa.

Direct-Connect New EPN to Existing PPN (High or Critical Reliability)

1. On the rear of the Duplicated Control Carrier, install a 9823A lightwave transceiver onto Slot 1.
2. Connect a 20-foot fiber optic cable to the TX and RX connectors on the transceiver. Label the cable to make the connections to the EPN cabinet easier.
3. Route the fiber cable to the J58890BB Port Carrier in position C in the EPN cabinet.
4. On the rear of the Port Carrier, install a 9823A lightwave transceiver onto Slot 2.
5. Connect the 20-foot fiber optic cable from the PPN Duplicated Control Carrier to the TX and RX connectors on the transceiver on the EPN Port Carrier. Be sure the cable connected to the TX connector on the PPN transceiver is connected to the RX connector on the EPN transceiver and vice versa.

Direct-Connect New EPN to Existing PPN and EPN (Standard Reliability)

For the following connection example, the PPN cabinet is called Cabinet 1, the first EPN cabinet (next to the PPN cabinet) is called Cabinet 2, and the last EPN cabinet is called Cabinet 3.

1. At the rear of the Port Carrier in position C in Cabinet 1, install a 9823A lightwave transceiver onto Slot 2.
2. Connect a 20-foot fiber optic cable to the TX and RX connectors on the transceiver. Label the cable to make the connections to Cabinet 3 easier.
3. Route the fiber cable to the Expansion Control Carrier in Cabinet 3.
4. At the rear of the Expansion Control Carrier in Cabinet 3, install a 9823A lightwave transceiver onto Slot 1.
5. Connect the 20-foot fiber optic cable from the Port Carrier in Cabinet 1 to the TX and RX connectors on the transceiver on the Expansion Control Carrier in Cabinet 3. Be sure the cable connected to the TX connector on 1 transceiver is connected to the RX connector on the other transceiver and vice versa.
6. At the rear of the Expansion Control Carrier in Cabinet 3, install a 9823A lightwave transceiver onto Slot 2.
7. Connect a 20-foot fiber optic cable to the TX and RX connectors on the transceiver. Be sure to label the cable.
8. At the rear of the Expansion Control Carrier in Cabinet 2, install a 9823A lightwave transceiver onto Slot 2.
9. Connect the 20-foot fiber optic cable from Cabinet 2 to the TX and RX connectors on the transceiver on the Expansion Control Carrier in Cabinet 3. Be sure the cable connected to the TX connector on 1 transceiver is connected to the RX connector on the other transceiver and vice versa.
10. At the rear of the Expansion Control Carrier in Cabinet 2, install a 9823A lightwave transceiver onto Slot 1.
11. Connect a 20-foot fiber optic cable to the TX and RX connectors on the transceiver on the Expansion Control Carrier in Cabinet 2.
12. Route the fiber cable to the Port Carrier in position B in Cabinet 1.
13. Install a 9823A lightwave transceiver onto Slot 2 on the Port Carrier in position D in Cabinet 1.
14. Connect the 20-foot fiber optic cable from Cabinet 2 to the TX and RX connectors on the transceiver on the Port Carrier in Cabinet 1. Be sure the cable connected to the TX connector on 1 transceiver is connected to the RX connector on the other transceiver and vice versa.

Direct-Connect New EPN to Existing PPN and EPN (High or Critical Reliability)

For the following connection example, the PPN cabinet is called Cabinet 1, the first EPN cabinet (next to the PPN cabinet) is called Cabinet 2, and the last EPN cabinet is called Cabinet 3.

1. At the rear of the Port Carrier in position C in Cabinet 1, install a 9823A lightwave transceiver onto Slot 2.
2. Connect a 20-foot fiber optic cable to the TX and RX connectors on the transceiver. Label the cable to make the connections to Cabinet 2 easier.
3. Route the fiber cable to the Expansion Control Carrier in Cabinet 2.
4. At the rear of the Expansion Control Carrier in Cabinet 2, install a 9823A lightwave transceiver onto Slot 1.
5. Connect the 20-foot fiber optic cable from the Port Carrier in Cabinet 1 to the TX and RX connectors on the transceiver on the Expansion Control Carrier in Cabinet 2. Be sure the cable connected to the TX connector on 1 transceiver is connected to the RX connector on the other transceiver and vice versa.
6. At the rear of the Expansion Control Carrier in Cabinet 2, install a 9823A lightwave transceiver onto Slot 2.
7. Connect a 20-foot fiber optic cable to the TX and RX connectors on the transceiver. Be sure to label the cable.
8. At the rear of the Expansion Control Carrier in Cabinet 3, install a 9823A lightwave transceiver onto Slot 2.
9. Connect the 20-foot fiber optic cable from Cabinet 2 to the TX and RX connectors on the transceiver on the Expansion Control Carrier in Cabinet 3. Be sure the cable connected to the TX connector on 1 transceiver is connected to the RX connector on the other transceiver and vice versa.
10. At the rear of the Expansion Control Carrier in Cabinet 3, install a 9823A lightwave transceiver onto Slot 1.
11. Connect a 20-foot fiber optic cable to the TX and RX connectors on the transceiver on the Expansion Control Carrier in Cabinet 3.
12. Route the fiber cable to the Port Carrier in position D in Cabinet 1.
13. At the rear of the Port Carrier in position D in Cabinet 1, install a 9823A lightwave transceiver onto Slot 2.
14. Connect the 20-foot fiber optic cable from Cabinet 3 to the TX and RX connectors on the transceiver on the Port Carrier in Cabinet 1. Be sure the cable connected to the TX connector on 1 transceiver is connected to the RX connector on the other transceiver and vice versa.

Interconnect Cabling Release 6r

For more fiber optic cabling information, refer to *DEFINITY Enterprise Communications Server Release 6 Installation and Test for Multi-Carrier Cabinets*.

Switch-Connect New EPN to Existing PPN and EPN (Standard Reliability)

For the following connection example, the PPN cabinet is called Cabinet 1, the first EPN cabinet is called Cabinet 2, and the EPN cabinet containing the Switch Node Carrier is called Cabinet 4.

NOTE:
For the following example, add links to PNs in alternating order, for example: 20 and 2, 19 and 3, 18 and 4, and so forth.

1. At the rear of the Port Carrier in position B in Cabinet 1, install a 9823A lightwave transceiver onto Slot 2 (1B02). See Figure 6-3.
2. Connect a 20-foot fiber optic cable to the TX and RX connectors on the transceiver. Label the cable to make the connections to Cabinet 4 easier.
3. Route the fiber cable to the Port Carrier in position E in Cabinet 4.
4. At the rear of the Port Carrier in position E in Cabinet 4, install a 9823A lightwave transceiver onto Slot 2 (4E02).
5. Connect the 20-foot fiber optic cable from the Port Carrier in Cabinet 1 to the TX and RX connectors on the transceiver on the Port Carrier in Cabinet 4. Be sure the cable connected to the TX connector on 1 transceiver is connected to the RX connector on the other transceiver and vice versa.
6. At the rear of the Expansion Control Carrier in Cabinet 2, install a 9823A lightwave transceiver onto Slot 1 (2A01).
7. Connect a 20-foot fiber optic cable to the TX and RX connectors on the transceiver. Be sure to label the cable.
8. At the rear of the Switch Node Carrier in position E in Cabinet 4, install a 9823A lightwave transceiver onto Slot 20 (4E20).
9. Connect the 20-foot fiber optic cable from Cabinet 2 to the TX and RX connectors on the transceiver on the Switch Node Carrier in Cabinet 4. Be sure the cable connected to the TX connector on 1 transceiver is connected to the RX connector on the other transceiver and vice versa.
10. Connect an H600-278 Metallic Cable from Slot 1 in the Expansion Control Carrier in Cabinet 4 (4A01) to Slot 19 on the Switch Node Carrier in position E in Cabinet 4 (4E19).

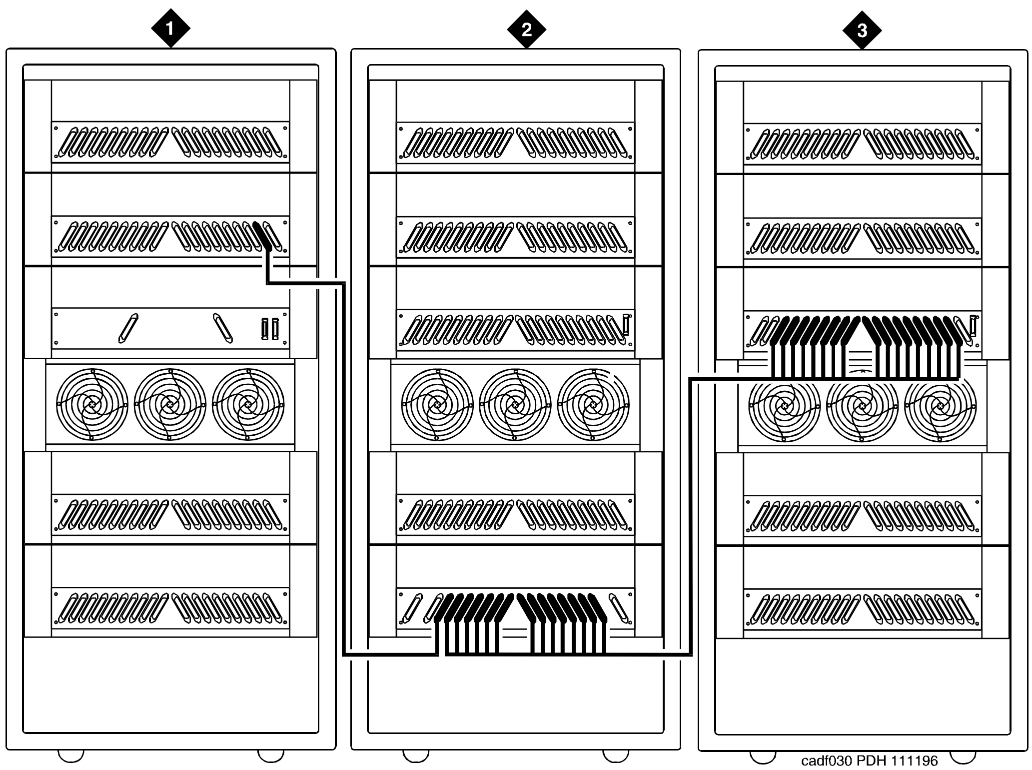


Figure Notes:

1. Cabinet 1 (PPN)
2. Cabinet 4 (MCC EPN with One Switch Node)
3. Cabinet 2, 3, and 5 through 16 (MCC or SCC EPNs)

Figure 6-3. Switch-Connected Release 6r with SNC in EPN

Switch-Connect New EPN to Existing PPN and EPN (High Reliability)

For the following connection example, the PPN cabinet is called Cabinet 1, the first EPN cabinet is called Cabinet 2, and the EPN cabinet containing the Switch Node Carrier is called Cabinet 4.

NOTE:
For the following example, add links to PNs in alternating order, for example: 20 and 2, 19 and 3, 18 and 4, and so forth.

1. At the rear of the Port Carrier in position C in Cabinet 1, install a 9823A lightwave transceiver onto Slot 2 (1C02). See Figure 6-4.
2. Connect a 20-foot fiber optic cable to the TX and RX connectors on the transceiver. Label the cable to make the connections to Cabinet 4 easier.
3. Route the fiber cable to the Port Carrier in position E in Cabinet 4.
4. At the rear of the Port Carrier in position E in Cabinet 4, install a 9823A lightwave transceiver onto Slot 2 (4E02).
5. Connect the 20-foot fiber optic cable from the Port Carrier in Cabinet 1 to the TX and RX connectors on the transceiver on the Port Carrier in Cabinet 4. Be sure the cable connected to the TX connector on 1 transceiver is connected to the RX connector on the other transceiver and vice versa.
6. At the rear of the Expansion Control Carrier in Cabinet 2, install a 9823A lightwave transceiver onto Slot 1 (2A01).
7. Connect a 20-foot fiber optic cable to the TX and RX connectors on the transceiver. Be sure to label the cable.
8. At the rear of the Switch Node Carrier in position E in Cabinet 4, install a 9823A lightwave transceiver onto Slot 20 (4E20).
9. Connect the 20-foot fiber optic cable from Cabinet 2 to the TX and RX connectors on the transceiver on the Switch Node Carrier in Cabinet 4. Be sure the cable connected to the TX connector on 1 transceiver is connected to the RX connector on the other transceiver and vice versa.
10. At the rear of the Port Carrier in position D in Cabinet 1, install a 9823A lightwave transceiver onto Slot 2 (1D02).
11. Connect a 20-foot fiber optic cable to the TX and RX connectors on the transceiver. Be sure to label the cable.
12. Route the fiber cable to Switch Node Carrier in position E in Cabinet 4.
13. At the rear of the Switch Node Carrier in position E in Cabinet 4, install a 9823A lightwave transceiver onto Slot 3 (4E03).
14. Connect the 20-foot fiber optic cable from Cabinet 1 to the TX and RX connectors on the transceiver on the Switch Node Carrier in Cabinet 4. Be sure the cable connected to the TX connector on 1 transceiver is connected to the RX connector on the other transceiver and vice versa.

15. Connect an H600-278 Metallic Cable from Slot 1 in the Expansion Control Carrier in Cabinet 4 (4A01) to Slot 19 on the Switch Node Carrier in position E in Cabinet 4 (4E19).

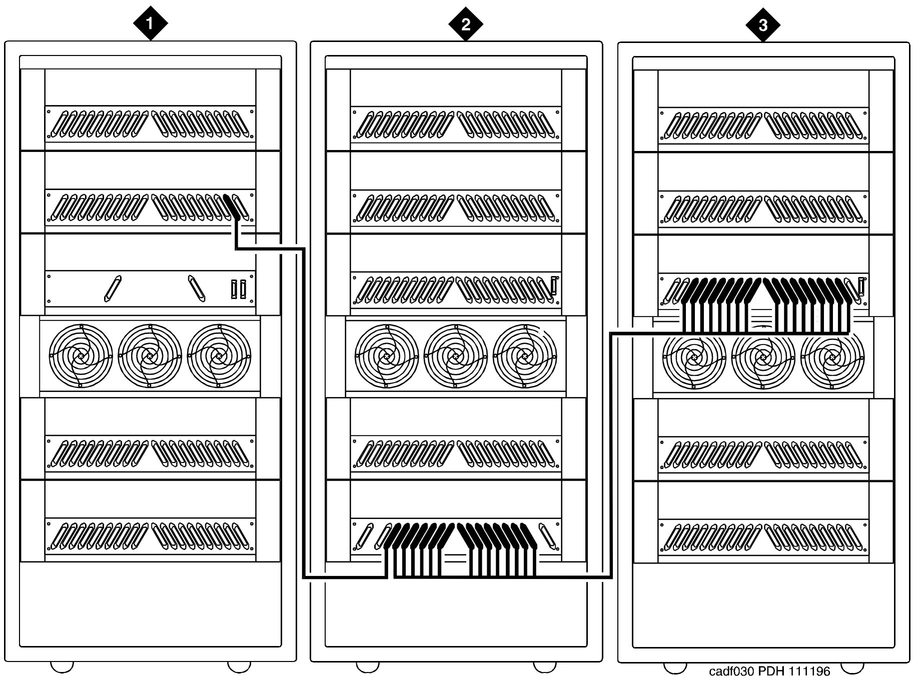


Figure Notes:

1. Cabinet 1 (PPN)
2. Cabinet 2, 3, and 5 through 16 (MCC or SCC EPNs)
3. Cabinet 4 (MCC EPN with One Switch Node)

Figure 6-4. Switch-Connected Release 6r with SNC in EPN

Switch-Connect New EPN to Existing PPN and EPN (Critical Reliability)

For the following connection example, the PPN cabinet is called Cabinet 1, the first EPN cabinet is called Cabinet 2, and the EPN cabinet containing the Switch Node Carrier is called Cabinet 4.

NOTE:
For the following example, add links to PNs in alternating order, for example: 20 and 2, 19 and 3, 18 and 4, and so forth.

1. At the rear of the Port Carrier in position C in Cabinet 1, install a lightwave transceiver onto Slot 2 (1C02). See Figure 6-5.
2. Connect a 20-foot (6 m) fiber optic cable to the TX and RX connectors on the transceiver. Label the cable to make the connections to Cabinet 4 easier.
3. Route the fiber cable to the Switch Node Carrier in position D in Cabinet 4.
4. At the rear of the Switch Node Carrier in position D in Cabinet 4, install a lightwave transceiver onto Slot 2 (4E02).
5. Connect the 20-foot (6 m) fiber optic cable from the Port Carrier in Cabinet 1 to the TX and RX connectors on the transceiver on the Switch Node Carrier in Cabinet 4. Be sure the cable connected to the TX connector on 1 transceiver is connected to the RX connector on the other transceiver and vice versa.
6. At the rear of the Port Carrier in position D in Cabinet 1, install a lightwave transceiver onto Slot 2 (1D02).
7. Connect a 20-foot (6 m) fiber optic cable to the TX and RX connectors on the transceiver. Be sure to label the cable.
8. At the rear of the Switch Node Carrier in position D in Cabinet 4, install a lightwave transceiver onto Slot 2 (4D02).
9. Connect the 20-foot (6 m) fiber optic cable from the Port Carrier in position D in Cabinet 1 to the TX and RX connectors on the transceiver. Be sure to label the cable.
10. At the rear of the Port Carrier in position B in Cabinet 2, install a 9823A lightwave transceiver onto Slot 2 (2B02).
11. Connect a 20-foot (6 m) fiber optic cable to the TX and RX connectors on the transceiver. Be sure to label the cable.
12. At the rear of the Switch Node Carrier in position D in Cabinet 4, install a lightwave transceiver onto Slot 20 (4D20).
13. Connect the 20-foot (6 m) fiber optic cable from the transceiver on the Switch Node Carrier position D in Cabinet 4. Be sure the cable connected to the TX connector on 1 transceiver is connected to the RX connector on the other transceiver and vice versa.

14. At the rear of the Expansion Control Carrier in position A in Cabinet 2, install a lightwave transceiver onto Slot 1 (2A01).
15. Connect a 20-foot (6 m) fiber optic cable to the TX and RX connectors on the transceiver. Be sure to label the cable.
16. At the rear of the Switch Node Carrier in position E in Cabinet 4, install a lightwave transceiver onto Slot 20 (4E20).
17. Connect the 20-foot (6 m) fiber optic cable from the transceiver on the Switch Node Carrier position E in Cabinet 4. Be sure the cable connected to the TX connector on 1 transceiver is connected to the RX connector on the other transceiver and vice versa.
18. At the rear of the Port Carrier in position B in Cabinet 3, install a lightwave transceiver onto Slot 2 (3A01).
19. Connect a 20-foot (6 m) fiber optic cable to the TX and RX connectors on the transceiver. Be sure to label the cable.
20. At the rear of the Switch Node Carrier in position E in Cabinet 4, install a lightwave transceiver onto Slot 3 (4E03).
21. Connect the 20-foot (6 m) fiber optic cable from the transceiver on the Switch Node Carrier position E in Cabinet 4. Be sure the cable connected to the TX connector on 1 transceiver is connected to the RX connector on the other transceiver and vice versa.
22. At the rear of the Expansion Control Carrier in position A in Cabinet 3, install a lightwave transceiver onto Slot 2 (3B02).
23. Connect a 20-foot (6 m) fiber optic cable to the TX and RX connectors on the transceiver. Be sure to label the cable.
24. At the rear of the Switch Node Carrier in position D in Cabinet 4, install a lightwave transceiver onto Slot 3 (4D03).
25. Connect the 20-foot (6 m) fiber optic cable from the transceiver on the Switch Node Carrier position D in Cabinet 4. Be sure the cable connected to the TX connector on 1 transceiver is connected to the RX connector on the other transceiver and vice versa.

    NOTE:
    Continue connecting the fiber cables in this manner until all fiber connections are made. Be sure to add links to PNs in alternating order (20 and 2, 19 and 3, 18 and 4, and so forth).

26. Connect an H600-278 Metallic Cable from Slot 1 in the Expansion Control Carrier in Cabinet 4 (4A01) to Slot 19 on the Switch Node Carrier in position E in Cabinet 4 (4E19).

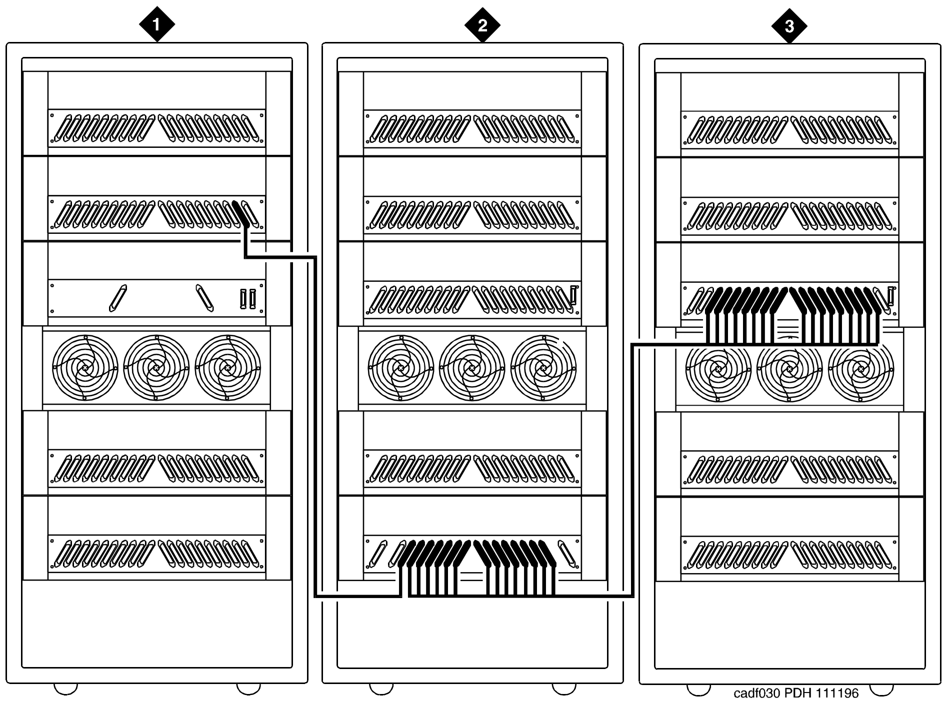


Figure Notes:

1. Cabinet 1 (PPN)
2. Cabinet 4 (MCC EPN with One Duplex Switch Node)
3. Cabinet 2, 3, and 5 through 16 (MCC or SCC EPNs) H600-278 Metallic Cable

Figure 6-5. Switch-Connected Release 6r with SNC in EPN

27. Connect an H600-278 Metallic Cable from Slot 2 in the Port Carrier in position B in Cabinet 4 (4B02) to Slot 19 on the Switch Node Carrier in position D in Cabinet 4 (4D19).

    NOTE:
    Both fibers from each PN must connect to the same slot number in each Switch Node Carrier. For example: if Slot 3A01 of EPN 3 connects to Switch Node Carrier Slot 4E19, then Slot 3B02 of EPN 3 must connect to Switch Node Carrier Slot 4D19.

28. Proceed to Appendix A, ‘‘Fiber Link Administration’’ to add the new fiber links.

Remove an EPN Cabinet from an Existing System

All Systems

Before starting the EPN removal process, perform the following:

1. Enter **change system-parameters features** and press Enter. Use Page 2 of the form to disable Terminal Translation Initialization (TTI) by changing the setting to **n**.
2. Unadminister *all* of the affected trunks, attendant consoles, voice terminals, and data modules associated with the port circuit packs in the EPN cabinet being removed. These port-related translations must be unadministered before removing any hardware. Refer to *DEFINITY Enterprise Communications Server Release 6 Administration and Feature Description* for more information.

Unadminister Fiber Links (Simplex Systems)

The fiber links routing to and from the EPN cabinet being removed must be unadministered before removing *any* hardware from the cabinet.

CAUTION:
Failure to unadminister fiber links before removing hardware causes unnecessary alarm reports to INADS and causes errors that are very difficult to clear.

The fiber links are administered to match hardware and the Fiber Optic Cable Running List. Fiber link administration creates translation data by identifying the endpoint pairs for each link. To properly unadminister the fiber links, this translation data must be removed.

1. Unadminister the TN570 Expansion Interface and the TN574 or TN1654 DS1 Converter circuit packs. Enter **change circuit-packs** and press Enter. Scroll through the pages on the form until the carrier containing the circuit packs is displayed. Remove the TN570 and the TN574 or TN1654 circuit packs from the slot locations on the form. Press Enter when finished.
2. Enter **list fiber** and press Enter. All administered fiber connections are displayed. Make note of which fiber links are to be removed.
3. Enter **change fiber link** and press Enter. The Fiber Link Administration screen appears. Use this form to unadminister fiber links, each of which is identified by a fiber number.
   a. The `Is one endpoint remoted via DS1 Converter complex?` field must remain administered.

   b. Remove the location of the TN570 and the TN574 or TN1654 circuit pack for both ENDPOINT-1 and ENDPOINT-2.

4. Scroll to Page 2 of the form.

   a. Enter **no**, as applicable, in each `Facility Installed?` field (A, B, C, and D).

   b. The `Bit Rate:` field must remain administered if other fiber connections associated with the facility will remain.

   c. The idle code in the `Idle Code MSB (1) . . . . LSB (8):` field must remain administered.

   d. The `Line Coding:` field must remain administered.

5. For a T1 site, proceed to ''T1 Installations Only''. For an E1 site, proceed to ''E1 Installations Only''.

T1 Installations Only

1. The `Framing Mode:` field is display only.
2. The `DS1CONV-1 Line Compensation:` and the `DS1CONV-2 Line Compensation:` fields are display only.
3. Remove the `Facility Circuit ID:` from the facilities being unadministered, if used. Press Enter.
4. A display similar to the following appears after the procedure is completed:

   `RESET PORT-NETWORK 2 LEVEL 2 (COLD) PERFORMED`.

E1 Installations Only

1. The `CRC?` field must remain administered.
2. The `Line Termination:` field is display only.
3. Remove the `Facility Circuit ID` information from the facilities being unadministered, if used. Press Enter.
4. A display similar to the following appears after the procedure is completed:

   `RESET PORT-NETWORK 2 LEVEL 2 (COLD) PERFORMED`.

All Installations

1. When the system reset is finished, enter **status port-network 2**. The Port Network Status screen appears. Verify that PNC Active is “up” and that the Service State is “in.”
2. A Span LED, on the front of the DS1 Converter circuit pack, must be off for each inactive facility administered. For example, if Facility A and Facility B are unadministered, then the top 2 Span LEDs on the circuit pack must be off. If the yellow LEDs are on, then problems were encountered during the unadministration of hardware. Span LEDs associated with administered facilities (C and D, in this example) should be on.

Removing the Hardware

1. Be sure that you have unadministered the trunks, attendant consoles, voice terminals, and data modules associated with the port circuit packs in the EPN cabinet.
2. Remove the fiber optic cables from the fiber transceivers at both ends of the fiber span. Carefully coil the fiber optic cables. Avoid bending cables to a radius smaller than 1.5 inches (3.8 cm).
3. Remove the fiber transceivers from the DS1 and/or DS1 converter circuit packs at both ends of each fiber span.
4. Remove the 25-pair cables from the connector panel on each carrier of the EPN.
5. Enter **remove cabinet** <**number**> and press Enter. This removes the EPN cabinet administration.
6. Remove the power cords from the power units in each carrier in the EPN and remove the AC power cord or DC power wires.
7. Check the grounding scheme for the cabinets. Perform the following:
   a. If any cabinet ground wires connect in *series* between the EPN cabinet and any other cabinet, remove the wires from the EPN cabinet and connect them to the next cabinet in the ground plane.

      CAUTION:
      Never leave cabinets ungrounded. When a ground wire is removed from a series-connected cabinet, the ground plane becomes open with respect to all subsequent cabinets.

   b. If any cabinet ground wires connect in *parallel* to other cabinets, or connect directly to the AC power panel ground or other approved ground, remove the wire from each end of the ground span.
8. Carefully remove the EPN cabinet. The cabinet may weigh as much as 800 pounds. Use caution.

9. Enter **change system-parameters features** and press Enter. Use this form to change the TTI field back to its previous setting before the upgrade.
10. When finished, place dust covers over all exposed fiber couplings that remain after the fiber optic cables are removed.
11. If any fiber optic cables were removed from Lightguide Interconnect Units (LIUs) or Fiber Patch Panels, remove the associated cable labeling. This will prevent confusion if existing fiber is later moved.
12. Return all unused equipment (not owned by the customer) to Lucent Technologies according to the requirements outlined in:

    BCS/Material Logistics, MSL/Attended Stocking Locations

    Methods and Procedures for Basic Material Returns
13. If any message waiting lamps are on, skip to ''Troubleshooting'' on page 6-20.

Unadminister Fiber Links (Duplex Systems)

The fiber links routing to and from the EPN cabinet being removed must be unadministered before removing *any* hardware from the cabinet.

⚠ CAUTION:
Failure to unadminister fiber links before removing hardware causes unnecessary alarm reports to INADS and causes errors that are very difficult to clear.

The fiber links are administered to match hardware and the Fiber Optic Cable Running List. Fiber link administration creates translation data by identifying the endpoint pairs for each link. To properly unadminister the fiber links, this translation data must be removed.

1. Enter **list fiber** and press Enter. All administered fiber connections are displayed. Make note of the fiber links to be removed.
2. Enter **change fiber link** and press Enter. The Fiber Link Administration form appears. On Page 1 of the form:
    a. Remove the `Board Location:` information for ENDPOINT-1 and ENDPOINT-2. This is the cabinet, carrier, and slot that identifies the physical location of an SNI or EI circuit pack that is the first endpoint of the fiber link. Repeat for the remaining endpoints.
    b. The `Board Type` field is display only.
    c. In the `DS1CONV Board Location`: field, remove the cabinet, carrier, and slot that identifies the physical location of DS1 Converter circuit pack in the first endpoint of the duplicate fiber link. Endpoint-1's duplicate along with Endpoint-2's duplicate make up the duplicate fiber link called the B-PNC link.

d. The `DS1CONV Board Type`: field is a display only field.

e. The `Is one endpoint remoted via a DS1 Converter Complex`? field must remain administered if other fiber connections associated with the facility will remain.

3. Scroll to Page 2 of the form.

   a. Remove the DS1 Converter Facilities information. In the `Facility Installed`? field, enter **no** for all facilities (A, B, C, and D) to be removed.

   b. The `Bit Rate`: field must remain administered.

   c. The idle code in the `Idle Code MSB (1) . . . . LSB (8):` field must remain administered.

   d. The data in the `Line Coding:` field must remain administered.

4. For a T1 site, proceed to ''T1 Installations Only''. For an E1 site, proceed to ''E1 Installations Only''.

T1 Installations Only

1. The `Framing Mode:` field is display only.
2. The `DS1CONV-1 Line Compensation:` and the `DS1CONV-2 Line Compensation:` fields are display only.
3. Remove the `Facility Circuit ID` information from the facilities being unadministered, if used. Press Enter.
4. A display similar to the following appears after the procedure is completed:

   `RESET PORT-NETWORK 2 LEVEL 2 (COLD) PERFORMED`.

E1 Installations Only

1. The `CRC`? field must remain administered.
2. The `Line Termination:` field is display only.
3. Remove the `Facility Circuit ID` information from facilities being unadministered, if used. Press Enter.
4. A display similar to the following appears after the procedure is completed:

   `RESET PORT-NETWORK 2 LEVEL 2 (COLD) PERFORMED`.

All Installations

1. When the system reset is finished, enter **status port-network 2** and press Enter. The Port Network Status screen appears. Verify that PNC Active is "up" and that the Service State is "in."
2. A Span LED, on the front of the DS1 Converter circuit pack, must be off for each inactive facility administered. For example, if Facility A and Facility B are unadministered, then the top 2 Span LEDs on the circuit pack must be off. If the yellow LEDs are on, then problems were encountered during the unadministration of hardware. Span LEDs associated with administered facilities (C and D, in this example) should be on.

Removing the Hardware

1. Be sure that you have unadministered the trunks, attendant consoles, voice terminals, and data modules associated with the port circuit packs in the EPN cabinet.
2. Remove the fiber optic cables from the fiber transceivers at both ends of the fiber span. Carefully coil the fiber optic cables. Avoid bending cables to a radius smaller than 1.5 inches (3.8 cm).
3. Remove the fiber transceivers from the DS1 and/or DS1 converter circuit packs at both ends of each fiber span.
4. Remove the 25-pair cables from the connector panel on each carrier of the EPN.
5. Enter **remove cabinet** <**number**> and press Enter. This removes the EPN cabinet administration.
6. Remove the power cords from the power units in each carrier in the EPN and remove the AC power cord or DC power wires.
7. Check the grounding scheme for the cabinets. Perform the following:
   a. If any cabinet ground wires connect in *series* between the EPN cabinet and any other cabinet, remove the wires from the EPN cabinet and connect them to the next cabinet in the ground plane.

      CAUTION:
      Never leave cabinets ungrounded. When a ground wire is removed from a series-connected cabinet, the ground plane becomes open with respect to all subsequent cabinets.

   b. If any cabinet ground wires connect in *parallel* to other cabinets, or connect directly to the AC power panel ground or other approved ground, remove the wire from each end of the ground span.
8. Carefully remove the EPN cabinet. The cabinet may weigh as much as 800 pounds. Use caution.

9. Enter **change system-parameters features** and press Enter. Use this form to change the TTI field back to its previous value before the upgrade.
10. When finished, place dust covers over all exposed fiber couplings that remain after the fiber optic cables are removed.
11. If any fiber optic cables were removed from Lightguide Interconnect Units (LIUs) or Fiber Patch Panels, remove the associated cable labeling. This will prevent confusion if existing fiber is later moved.
12. Return all unused equipment (not owned by the customer) to Lucent Technologies according to the requirements outlined in:

    BCS/Material Logistics, MSL/Attended Stocking Locations

    Methods and Procedures for Basic Material Returns

Troubleshooting

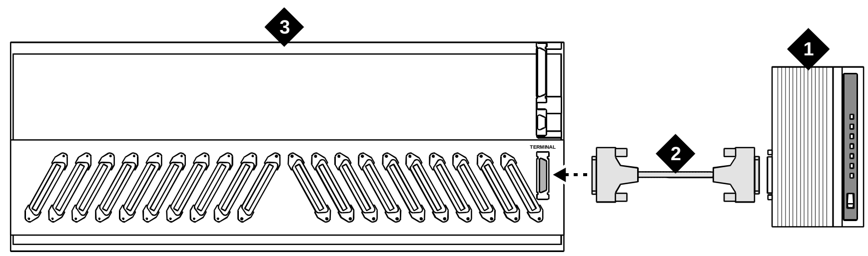
Message Waiting Lamps On

This usually means that all affected port-related translations were not unadministered.

1. Enter **clear amw all** <**extension**> and press Enter. This clears the message waiting lamp for the specified extension.
2. Repeat the command for each extension with a lit message waiting lamp.

Add External Modem to EPN

U.S. Robotics Model 839 External Modem



cydfepnm KLC 100397

Figure Notes:

1. U.S. Robotics External Modem
2. RS-232 Cable
3. Expansion Port Network

Figure 6-6. Connect External Modem to EPN

1. Connect an RS-232 cable to the modem. See Figure Figure 6-6.

   NOTE:
   In the following steps, a PC with Windows 95 or Windows NT 4.0 may be substituted for the dumb terminal. Use the Hyperterminal (terminal emulation) application.

2. Connect the opposite end of the RS-232 cable to a dumb terminal.
3. Set the dumb terminal to full duplex mode.
4. Enter **AT&N6** to set the baud rate to 9600.

   NOTE:
   The modem connects at 9600 baud but throughput is at 1200 baud.

5. Enter **AT&W0** to save the setting into non-volatile RAM.
6. Set Switch 5 to the OFF (up) position to disable auto answer.
7. Disconnect the RS-232 cable from the terminal and connect it to the TERMINAL connector on the rear of the system cabinet.

Add a Control Carrier (Add Duplication)

To upgrade a standard-reliability system to a high- or critical-reliability DEFINITY ECS Release 5 system, a second control carrier is added to carrier position “B” of the existing multi-carrier cabinet PPN.

Service Interruption

1. Since the addition of the second control carrier requires a service interruption, notify the customer in advance as to when the addition will be carried out.

Verify System Status

1. Before proceeding, the system should be examined for alarms, and every problem should be corrected. The system must be alarm-free.

Disable Alarm Origination

1. Enter **change system-parameters maintenance** and press Enter.
2. Make a note of the `Alarm Origination Activated` field administration. If the feature is enabled, enter **n** in this field and press Enter to disable Alarm Origination. This will be activated again later.

WARNING:
If you do not disable Alarm Origination before making changes to the switch, the switch may generate alarms, resulting in unnecessary trouble tickets. Reducing redundant and unnecessary trouble tickets is critical for measuring the quality of Lucent services and products.

NOTE:
For earlier releases of the system software, you may also need to disable `Cleared Alarm Notification` and `Restart Notification` before you can submit the form successfully.

Save Translations

1. Log in at the management terminal.
2. Enter **save translation [spe-a] disk** and press Enter. This command instructs the system write all translation information from memory to disk.
3. If the PPN or an EPN (where PPN Port Carrier B will be relocated) contains a TN750 Announcement circuit pack, enter **display announcements** and press Enter.

4. If administered recorded announcements are listed, enter **list configuration software-version**, press Enter. Check Page 2 of this form to see when the announcements were last saved. Save the current announcements using the **save announcements disk** and press Enter.
5. Enter **backup disk [spe-a]** and press Enter. This instructs the system to backup the current information on disk to the system tape.
6. Update backup tape, if required.

Label Cables

1. To make reconnecting the cables simpler and more reliable, label both ends of the connector cables associated with the port carrier “B” to be removed.

Shut Down DEFINITY LAN Gateway System

If a DEFINITY LAN Gateway system resides in the control cabinet to be upgraded, prepare to shut down the DEFINITY LAN Gateway assembly and allow the disk to completely spin down.

CAUTION:
Before using this procedure to shut down the DEFINITY LAN Gateway, make sure that you save the system parameters if you plan to reuse the current system.

WARNING:
Neglecting to shut down a DEFINITY LAN Gateway assembly before powering down the system cabinet where it resides can damage the LAN Gateway disk.

1. Log onto the DEFINITY LAN Gateway. See *DEFINITY Communications System Generic 3 Installation, Administration and Maintenance of CallVisor ASAI over the DEFINITY LAN Gateway*, 555-230-223, for the procedure to log in.
2. When the main menu appears, select *Maintenance*.
3. Select *Reset System* from the *Maintenance* menu.
4. Select *Shutdown* from the *Reset System* menu.
5. Unseat the LAN Gateway assembly from its backplane connectors.

Shut Down DEFINITY AUDIX System

1. If a DEFINITY AUDIX resides in the PPN or an EPN (where PPN Port Carrier B will be relocated), shut down the AUDIX and allow the disk to completely spin down. Refer to ‘‘DEFINITY AUDIX Power Procedures’’ on page 6-80.

   WARNING:
   Neglecting to shut down an AUDIX assembly before powering down the system cabinet where it resides can damage the AUDIX disk.

2. Unseat the AUDIX assembly from its backplane connectors.

Power Down Port Networks

1. At the PPN, set the main circuit breaker to OFF.
2. At an EPN (where PPN port carrier B will be relocated), set the main circuit breaker to OFF.

Remove Doors and Panels and Disconnect Cables

1. Remove the front door from the PPN cabinet.
2. With the cable retainer in front of you and the part number visible, locate the slot that is almost vertical. (This slot is adjacent to the part number.) Insert a flat blade screwdriver with a wide blade (1/4-inch recommended) into the slot, and twist. The retainer snap opens easily so that the cable can be removed.
3. At the cabinet, disconnect previously labeled cables associated with the carrier to be removed.
4. Remove the back doors from the cabinet.

Remove Circuit Packs from Port Carrier B

1. To ensure that circuit packs and power units in the “B” carrier are properly replaced, label each component with its slot number.
2. Disconnect the power cords from the power units in the “B” carrier.
3. Remove all circuit packs and power units from carrier “B.” Store the circuit packs in the static-proof packaging.
4. Remove the circuit pack blanks from slots that do not contain circuit packs.
5. Remove the front trim plate from the “B” carrier by pulling straight off.

Remove Port Carrier B

1. Behind the PPN, disconnect and remove the ICCB cable from between carrier "B" and carrier "A." It will not be reused.

   NOTE:
   Note the position of the TDM/LAN cables before disconnecting them.

2. Disconnect 1 end of the TDM/LAN cable (between the "B" and "C" carriers) from the "B" carrier (See Figure 6-7).
3. Disconnect 1 end of the TDM/LAN cable (between the "B" and "A" carriers) from the "B" carrier (See Figure 6-7).
4. Disconnect 1 end of the 8 ground straps (between the "B" and "C" carriers) from the "B" carrier (See Figure 6-8). These straps are reconnected to the new "B" carrier.
5. Disconnect 1 end of the 8 ground straps (between the "B" and "A" carriers) from the "B" carrier (See Figure 6-8). These straps are reconnected to the new "B" carrier.
6. Disconnect the "P1" (small 9-pin) connector from the "B" carrier. Move the cable into a position where it will not interfere with removing the carrier.
7. Behind the "B" carrier, remove the 2 screws holding the "B" carrier's rear connector panel to the cabinet frame. These are frame ground screws.
8. In front of "B" carrier, remove the 4 screws (top 2 first) holding the "B" carrier to the cabinet frame. Use a long-handle screwdriver or 5/16-inch socket with a 10-inch extension.
9. Slide the carrier forward 1 to 2 inches; then, from the back, be sure that no cables or wiring harnesses are caught on the cabinet/carrier framework.

   CAUTION:
   Cables and wiring harnesses can be damaged if they catch on the framework and if too much pressure is applied in removing the carrier.

10. Remove the carrier by sliding it out the front of the cabinet.

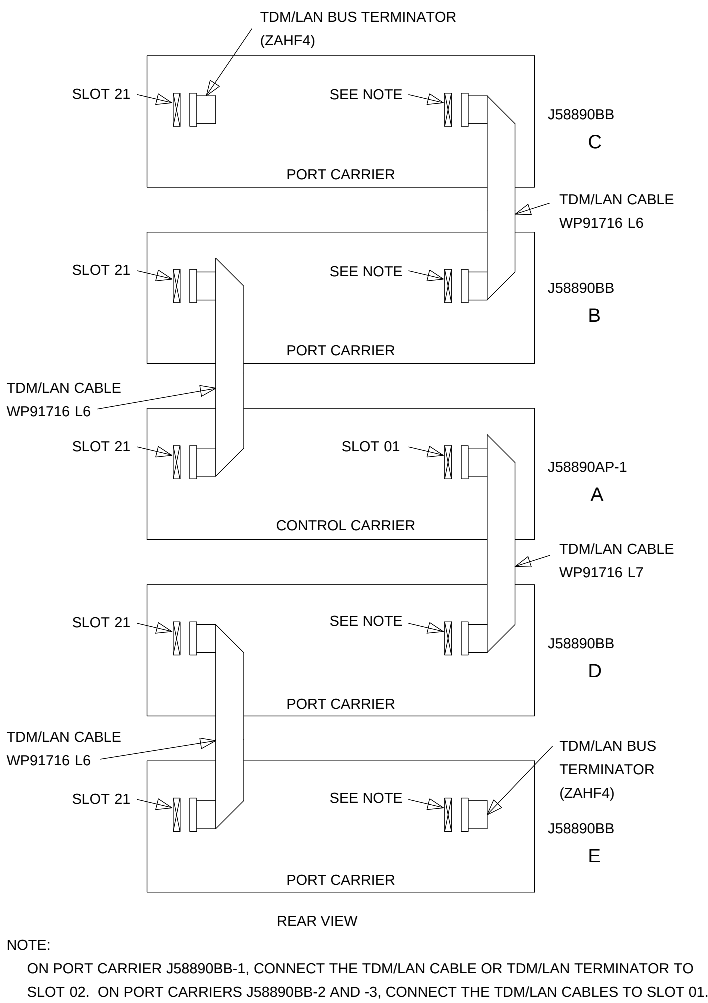


Figure 6-7. TDM/LAN Connections for Standard-Reliability PPN

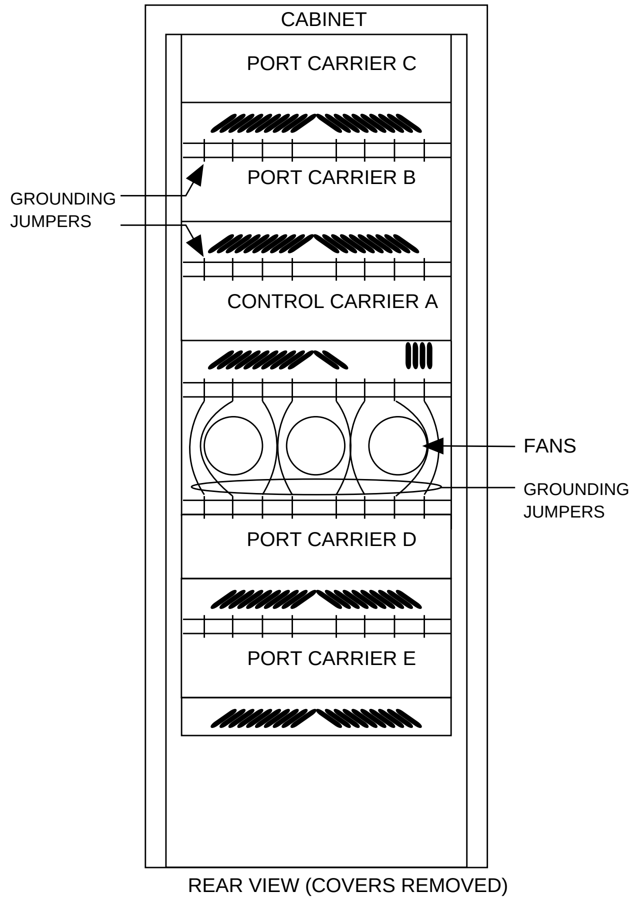


Figure 6-8. Locations of Grounding Jumpers

Prepare New Control Carrier B

1. Visually inspect the new carrier for any damage. Verify that the backplane pins are not bent.
2. Place the control carrier on the floor so that the rear of the carrier faces up.
3. Verify that the 2 AHF111 processor-bus (PX) terminators are installed on the “B” carrier to the pin-field blocks marked “PX” (top portion of slots “4” and “10”). The PX terminators are attached with the components on the left side as viewed from the rear.

Install New Control Carrier B

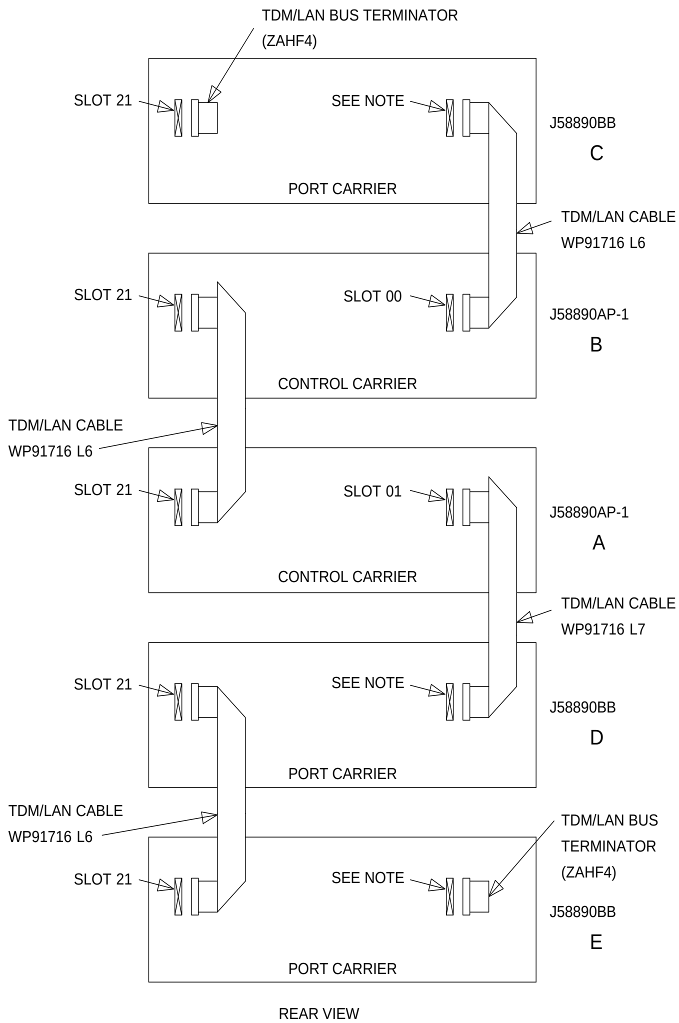
1. Install the J58890AP control carrier in position “B” by lining up the plastic alignment tips on the top rear of the carrier with the screw holes in the cabinet. These alignment tips will support the carrier while the screws are being replaced. Ensure that the power cords are properly placed in the slots at the sides of the carrier.
2. Fasten the carrier into position with 4 self-tapping screws saved from the removal of the old carrier.

   CAUTION:
   Carefully realign the threads on the self-tapping screws by turning them clockwise 1 turn before tightening them to avoid stripping the threads out of the framework.

3. Behind the carrier, replace the 2 screws saved from the removal of the old carrier. These are frame ground screws.
4. Connect the “P1” (small) connector to the “B” carrier. To get enough slack in the cables, cut the tie wrap holding the intercabinet cable from the upright in the area being installed. Snap the connector lock into place to ensure the connection is properly made.
5. Connect the 8 ground straps from the “C” carrier to the new “B” carrier (See Figure 6-8). These straps were left connected to the “C” carrier when the old “B” carrier was removed.
6. Connect the 8 ground straps from the “A” carrier to the new “B” carrier (See Figure 6-8). These straps were left connected to the “A” carrier when the old “B” carrier was removed.
7. For an AC-powered control carrier, install the 2 new carrier-ground straps. One strap connects ground point “1” to the B-carrier frame (on the right side), and the other connects ground point “8” to the B-carrier frame (on the left side).

   NOTE:
   DC-powered carriers do not use these carrier-ground straps.

8. Connect the loose end of the TDM/LAN cable (between the “C” and “B” carriers) to the pin-field block marked “TDM/LAN” on the right side of the “B” carrier (See Figure 6-9 and Table 6-1). The other end remained connected to the “C” carrier when the old carrier was removed.
9. Connect the loose end of the TDM/LAN cable (between the “A” and “B” carriers) to the pin-field block marked “TDM/LAN” on the left side of the “B” carrier (See Figure 6-9 and Table 6-1). The other end remained connected to the “A” carrier when the old carrier was removed.



NOTE:
ON PORT CARRIER J58890BB-1, CONNECT THE TDM/LAN CABLE OR TDM/LAN TERMINATOR TO SLOT 02. ON PORT CARRIERS J58890BB-2 AND -3, CONNECT THE TDM/LAN CABLES TO SLOT 01.

Figure 6-9. TDM/LAN Connections for High-Reliability PPN

Table 6-1. TDM/LAN Connections

"J" Number	Carrier Type	LHS Slot	RHS Slot
J58890B-1	Port	21	02
J58890B-2	Port	21	01
J58890B-3	Port	21	01
J58890AP	Control	21	02

10. Install the alarm duplication cable (H600-198 G1) between carriers "B" and "A." Connect the cable to the "ICCA" pin-field block (to the right of the pin-field block for slot "00") of both carriers. See Figure 6-10. Connect the "UAK" (upper) connector to carrier "B," and connect the "LAK" (lower) connector to carrier "A."

   CAUTION:
   While installing the ICC cable connectors, be careful not to bend any backplane pins. Double check each connection to verify that the pins are straight.

   NOTE:
   With a connector in each hand, flex the wires within the cable's sheath to form a usable C-shaped cable.

11. Install the ICCC cable (H600-182 G1) between carriers "B" and "A." Connect the cable to the "ICCC" pin-field block (behind slot "01") of both carriers. See Figure 6-10.

12. Install the duplication cable (WP91954 L1) between carriers "B" and "A." Connect the cable to the "ICCD" pin-field block (behind slot "02") of both carriers. See Figure 6-10.

   NOTE:
   The duplication cable's connectors are keyed to ensure proper positioning on the pin-field block.

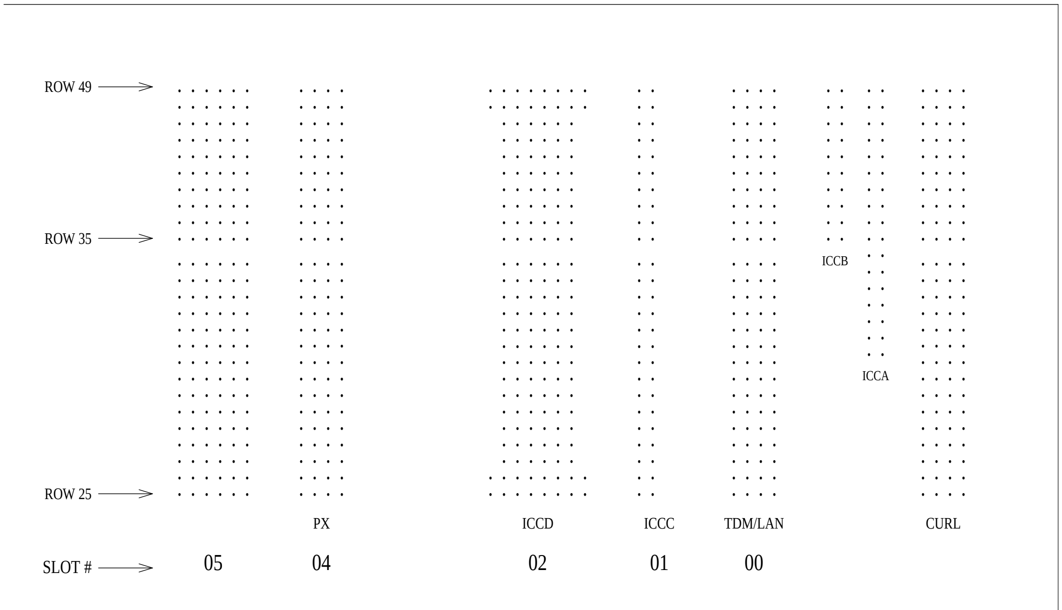


Figure 6-10. ICC Connections for R6r Control Carrier

13. Install the front trim plate on the “B” carrier.
14. Install the new power units into the “B” carrier. The 631DA1 or 644A is installed on the left side, while the 631DB1 or 645B and the 649A are installed on the right side.
15. Connect the white power cords to the power units. The power cords are equipped with plugs that are run through the slots in the front of each carrier.

Install Circuit Packs

1. Install a new UN330B Duplication Interface circuit pack into carrier “A.” Use the decal as a guide.
2. Install the new R6r control circuit packs into carrier “B.” Use the new decal (provided with the equipment) as a guide.
3. Install the new TN570B Expansion Interface circuit packs into each port network, and (if not duplicating a switch node carrier) interconnect the port networks with the fiber optic cables.
4. For a critical reliability R6r system, install a new TN771C Maintenance/Test circuit pack into an available port slot of each EPN (if not already present).
5. Install circuit pack blanks in slots not equipped with circuit packs.

Relocate Port Carrier B

Refer to <u>Add a Switch Node Carrier (High or Critical Reliability)</u> to relocate the removed port carrier.

Connect Management Terminal

1. Behind control carrier “A,” disconnect the management terminal cable from the “TERM” connector, and reconnect the cable to the “DOT” (duplication option terminal) connector.

Reseat DEFINITY LAN Gateway System

1. Reseat the LAN Gateway assembly into its backplane connectors.

Reseat DEFINITY AUDIX System

1. If a DEFINITY AUDIX System resides in the PPN or an EPN (where PPN port carrier “B” was relocated), reseat the AUDIX assembly to its backplane connectors.

Power Up System

1. At an EPN (where PPN port carrier “B” was relocated), set the main circuit breaker to ON.
2. At the PPN, set the main circuit breaker to ON.
3. The system performs a level 4 rebooting process, loading the system program and default or current translations from the disk. Rebooting takes 5 to 11 minutes.

   NOTE:
   Ignore alarms for now.

4. If new tapes were made off-site at the FSAC or STS, insert them in the tape drives. Otherwise, make software modifications and then go to Step 8.
5. Enter the **reset system 4 tape** command to copy the translations from tape to memory.
6. Remove the translated tapes and move the write-protect slide to record.
7. Re-insert the write-enabled tapes into the drives.
8. Clear any alarms.
9. Enter the **save translation [both] tape** command if translation changes were made in Step 8.

10. Enter the **restore disk [both] full** command to copy the translations from tape to disk.
11. Verify that the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal operating mode.

Restart DEFINITY LAN Gateway System

1. Log onto the DEFINITY LAN Gateway.
2. When the main menu appears, select *Maintenance*.
3. Select *Reset System* from the *Maintenance* menu.
4. Select *Restart System* from the *Reset System* menu.

Enable SPE Duplication

1. If not also duplicating switch node carriers, refer to Duplication-Related System Parameters in *DEFINITY Enterprise Communications Server Release 6 Administration and Feature Description*, to enable Switch Processing Element (SPE) duplication.

Enable PNC Duplication

1. For a critical-reliability R6r system, enter **change system-parameters customer-options** and press Enter. Use this form to enable the Port Network Connectivity (PNC) duplication option.

Resolve Alarms and Enable Alarm Origination

1. Examine the alarm log. Resolve any alarms using *DEFINITY Enterprise Communications Server Release 6 Maintenance for R6r*.
2. If the `Alarm Origination Activated` field administration is already set to **y**, be sure to enable Alarm Origination. Otherwise you do not need to enable Alarm Origination (proceed to the next section).
3. Enter **change system-parameters maintenance** and press Enter.

   The `Alarm Origination Activated` field was changed to `Alarm Origination to OSS Numbers` to support more than 1 OSS.
4. Enter **first-only** in this field to enable Alarm Origination (to the first OSS, which should be INADS).

   Be sure to enter **y** in both `Cleared Alarm Notification` and `Restart Notification` fields. Press Enter.
5. Enter **save translation spe-a disk** and press Enter.

NOTE:
The INADS Database Administrator enables Alarm Origination as part of the registration process.

WARNING:
If you do not enable Alarm Origination when the customer has purchased a services contract, the switch will not report any alarm to the TSC automatically, causing the TSC to be unable to fulfill the services contract.

Add a Switch Node Carrier (Standard Reliability)

To upgrade to a standard reliability R6r with Center Stage Switch (CSS), a switch node carrier is added either to an empty "E" carrier position of an existing multi-carrier port network or to the "D" carrier position.

NOTE:
To avoid moving a port carrier, the preferred practice is to place the new switch node carrier in an empty carrier position.

Service Interruption

1. Since the addition of the switch node carrier requires a service interruption, notify the customer in advance as to when the addition will take place.

Verify System Status

1. Before proceeding, examine the system for alarms and correct all problems. The system must be alarm-free.

Disable Alarm Origination

1. Enter **change system-parameters maintenance** and press Enter.
2. Make a note of the `Alarm Origination Activated` field administration. If the feature is enabled, enter **n** in this field and press Enter to disable Alarm Origination.

   WARNING:
   If you do not disable Alarm Origination before making changes to the switch, the switch may generate alarms, resulting in unnecessary trouble tickets. Reducing redundant and unnecessary trouble tickets.

   NOTE:
   For some releases of the software, disable `Cleared Alarm Notification` and `Restart Notification` before submitting the form.

Save Translations

1. Log in at the management terminal.
2. Enter **save translation disk** and press Enter. This instructs the system to take all translation information in memory and write it to the disk.
3. If the system contains a TN750/B Announcement circuit pack, enter **display announcements** and press Enter.
4. If administered recorded announcements are listed, enter **list configuration software-version** press Enter. Check Page 2 of this form to find out when the announcements were last saved. Save the current announcements using **save announcements disk** and press Enter.
5. Enter **backup disk** and press Enter. This instructs the system to backup the current information on disk to the system tape(s).
6. Update backup tape(s), if required.

Shut Down DEFINITY LAN Gateway System

If a DEFINITY LAN Gateway system resides in the control cabinet to be upgraded, prepare to shut down the DEFINITY LAN Gateway assembly and allow the disk to completely spin down.

CAUTION:
Make sure that you save the system parameters if you plan to reuse the current system.

WARNING:
Neglecting to shut down a DEFINITY LAN Gateway assembly before powering down the system cabinet where it resides can damage the LAN Gateway disk.

1. Log onto the DEFINITY LAN Gateway. See the *DEFINITY Communications System Generic 3 Installation, Administration and Maintenance of CallVisor ASAI over the DEFINITY LAN Gateway*.
2. When the main menu appears, select *Maintenance*.
3. Select *Reset System* from the *Maintenance* menu.
4. Select *Shutdown* from the *Reset System* menu.
5. Unseat the LAN Gateway assembly from its backplane connectors.

Shut Down DEFINITY AUDIX System

1. Shut down the AUDIX assembly and allow the disk to completely spin down. Refer to ''DEFINITY AUDIX Power Procedures'' on page 6-80.

   WARNING:
   Neglecting to shut down an AUDIX assembly before powering down the system cabinet where it resides can damage the AUDIX disk.

2. Unseat the AUDIX assembly from its backplane connectors.

Power Down Cabinet

1. At the cabinet that is receiving the new switch node carrier, set the main circuit breaker to OFF.

Remove Doors

1. Remove the front and rear doors from the cabinet where the switch node carrier will be installed.

Disconnect Ground Cables

Skip these steps if a switch node carrier is being added to an empty carrier position.

1. Label the ground cables associated with the port carrier to be removed.
2. Disconnect the ground cables from the top of the port carrier to be removed. Allow the cables to hang down for now.

Remove Circuit Packs from Port Carrier D

Skip these steps if a switch node carrier is being added to an empty carrier position.

1. To ensure that circuit packs and power units in the "D" carrier are properly replaced, label each component with its slot number.
2. Disconnect the power cords from the power units in the "D" carrier.
3. Remove all circuit packs and power units from carrier "D." Store the circuit packs in static-proof packaging.
4. Remove the circuit pack blanks from slots that do not contain circuit packs.
5. Remove the front trim plate from the "D" carrier by pulling straight off.

Remove Port Carrier D

Skip these steps if a switch node carrier is being added to an empty carrier position.

NOTE:
Note the position of the TDM/LAN cables before disconnecting.

1. If a switch node carrier is being installed in the “D” position of an EPN, remove the TDM/LAN cable from between the “D” and “A” carriers.

   For other EPNs or the PPN, disconnect 1 end of the TDM/LAN cable (between the “D” and “A” carriers) from the “D” carrier.

2. Remove the ZAHF4 TDM/LAN bus terminator from slot “21” of the “D” carrier.
3. Disconnect 1 end of the 8 ground straps (between the “D” and “E” carriers) from the “D” carrier (See Figure 6-11). These straps will be reconnected to the new “D” carrier.
4. Disconnect 1 end of the 8 ground straps (between the “D” and “A” carriers) from the “D” carrier (See Figure 6-11). These straps will be reconnected to the new “D” carrier.
5. Disconnect the “P1” (small 9-pin) connector from the “D” carrier. Move the cable into a position where it will not interfere with removing the carrier.
6. Remove the 4 screws (top 2 first) holding the “D” carrier to the cabinet frame. Use a long-handle screwdriver or 5/16-inch socket with a 10-inch extension.
7. Behind the “D” carrier in a “DEFINITY style” cabinet, remove the 2 screws holding the “D” carrier to the cabinet frame.
8. Slide the carrier forward 1 to 2 inches; then, from the back, be sure that no cables or wiring harnesses are caught on the cabinet/carrier framework.

   CAUTION:
   Cables and wiring harnesses can be damaged if they catch on the framework and if too much pressure is applied in removing the carrier.

9. Remove the carrier by sliding it out the front of the cabinet.

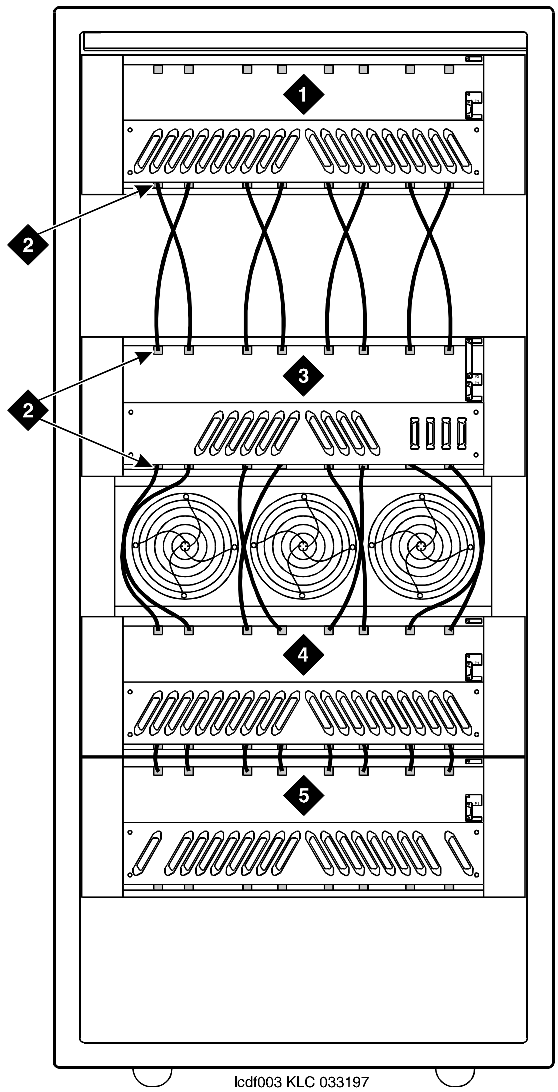


Figure Notes

1. Port Carrier (“C” Position)
2. Ground Jumpers
3. Control Carrier (“A” Position)
4. Switch Node Carrier (“D” Position)
5. Switch Node Carrier (“E” Position)

Figure 6-11. Locations of Grounding Jumpers

Prepare New Switch Node Carrier D

1. Visually inspect the new J58890SA Switch Node Carrier for any damage. Verify that the backplane pins are not bent.
2. Place the switch node carrier on the floor so that the rear of the carrier faces up.
3. Verify that the four AHF105 switch node (SN) bus terminators are installed on the “D” carrier to the pin-field blocks marked “SNTRM” (top and bottom portions of slots “02” and “20”). See Figure 6-12. The SN bus terminators attach with the components on the left side as viewed from the rear.
4. At the rear connector panel, determine which connectors will have a cable attached, and install a 4C cable retainer on each of these connectors.

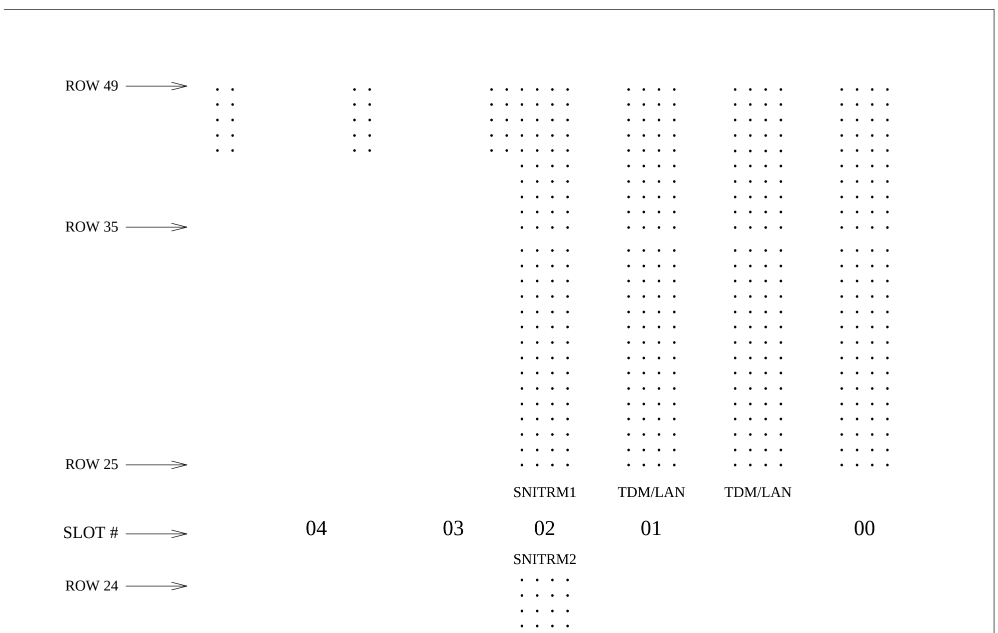


Figure 6-12. ICC Connections for Switch Node Carrier

Install New Switch Node Carrier

1. Install the switch node carrier into position “D” by lining up the plastic alignment tips on the top rear of the carrier with the screw holes in the cabinet. These alignment tips support the carrier while the screws are being replaced. Ensure that the power cords are properly placed in the slots at the sides of the carrier.
2. Fasten the carrier into position with 4 self-tapping screws.

   CAUTION:
   Carefully realign the threads on the self-tapping screws by turning them clockwise 1 turn before tightening them to avoid stripping the threads out of the framework.

3. Behind the carrier, replace the 2 screws saved from the removal of the old carrier.
4. Connect the “P1” (small) connector to the “D” carrier. If necessary, to get enough slack in the cables, cut the tie wrap holding the intercabinet cable from the upright in the area being installed. Snap the connector lock into place to ensure the connection is properly made.
5. Connect the 8 ground straps from the “A” carrier to the new “D” carrier. See Figure 6-11. These straps were left connected to the “A” carrier when the old “D” carrier was removed.
6. Connect the 8 ground straps from the “E” carrier (if installed) to the new “D” carrier. See Figure 6-11. These straps were left connected to the “E” carrier when the old “D” carrier was removed.
7. For an AC-powered system, install the 2 new carrier-ground straps. One strap connects ground point “1” to the “D” carrier frame (on the right side), and the other connects ground point “8” to the “D” carrier frame (on the left side).

   NOTE:
   DC-powered carriers do not use these carrier-ground straps.

8. If the switch node carrier was installed in the “D” position of the PPN, install the TDM/LAN cable (between the “A” and “D” carriers) to the pin-field block labeled “TDM/LAN” on the right side of both carriers. See Figure 6-13 and Table 6-2.

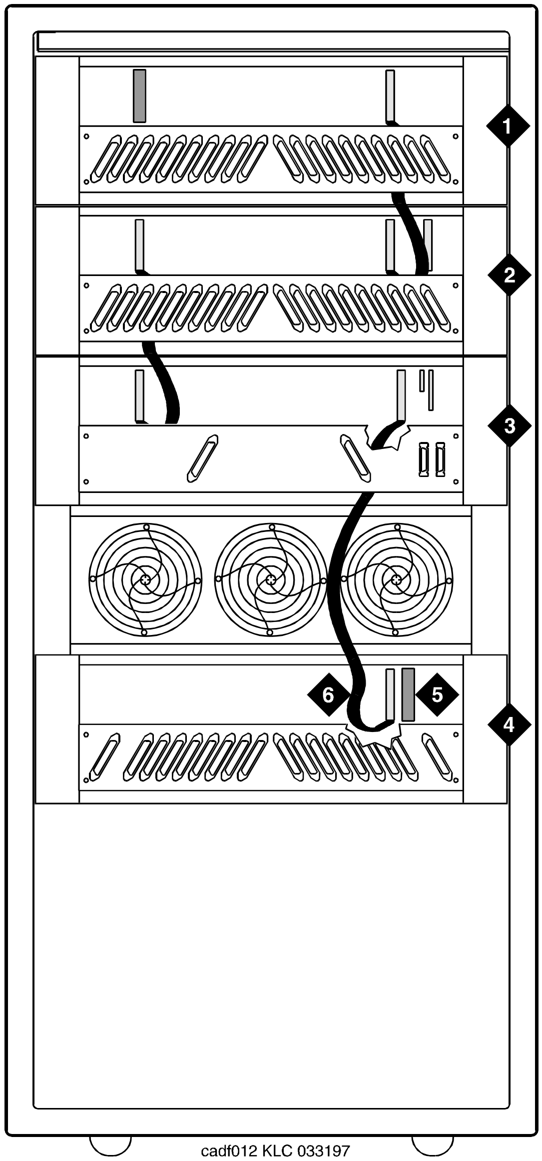


Figure Notes

1. Port Carrier (“C” Position)
2. Port Carrier (“B” Position)
3. Processor Carrier (“A” Position)
4. Switch Node Carrier (“D” Position)
5. TDM/LAN Bus Terminator (ZAHF4)
6. TDM/LAN Cable (WP91716 L7)

Figure 6-13. TDM/LAN Connections for Standard Reliability R6r EPN

Table 6-2. TDM/LAN Connections

“J” Number	Carrier Type	LHS Slot	RHS Slot
J58890B-1	Port	21	02
J58890B-2	Port	21	01
J58890B-3	Port	21	01
J58890AP	Control	21	02

9. If a switch node carrier was installed in the “D” position, verify that the ZAHF4 TDM/LAN bus terminator is installed at slot 02 of the switch node carrier “D”. See Figure 6-13.

   If a switch node carrier is being installed in the “E” position, verify that the ZAHF4 TDM/LAN bus terminator is installed at slot 21.
10. Install the front trim plates on the “D” carrier.
11. Install the new power units into the “D” carrier. Install a 649A on the left and right sides of the carrier.
12. Connect the power cords to the power units. The power cords are the white cables equipped with plugs that are run through the slots in the front of each carrier.

Install Circuit Packs

1. Install the new circuit packs into carrier “D.” Use the decal and the upgrade configuration document (provided with the equipment) as a guide.
2. Install circuit pack blanks in slots not equipped with circuit packs.

Interconnect Port Networks

1. Behind the cabinet containing the switch node carrier (see Figure 6-14):
   a. Connect the metallic intracarrier cable (H600-278) to slots 1D01 and 1D02.
2. Behind switch node carrier D of PPN cabinet 1 (See Figure 6-14):
   a. For each EPN, install 1 lightwave transceiver on a cable connector with the following order of slots: 1D20, 1D03, 1D19, 1D04, 1D18, 1D05, and so forth.
   b. Connect 1 end of a fiber optic cable to each lightwave transceiver, just installed.
   c. Carefully attach the fiber optic cables (with cable ties) to the wall of the cable tray at the built-in cable-tie positions.
3. Behind processor carrier A of each EPN cabinet:
   a. Install a lightwave transceiver on cable connector at slot 1A01.
   b. Connect the other end of the fiber optic cable to the lightwave transceiver, just installed, at slot A01.
   c. Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable-tie positions.
   d. Coil up the surplus length of fiber optic cable, and carefully attach the coil to the wall of the cable tray.
4. Behind port carrier B of each EPN cabinet:
   a. Install a lightwave transceiver on cable connector at slot 1B02.
   b. Connect the other end of the fiber optic cable to the lightwave transceiver, just installed.
   c. Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable-tie positions.
   d. Coil up the surplus length of fiber optic cable, and carefully attach the coil to the wall of the cable tray.

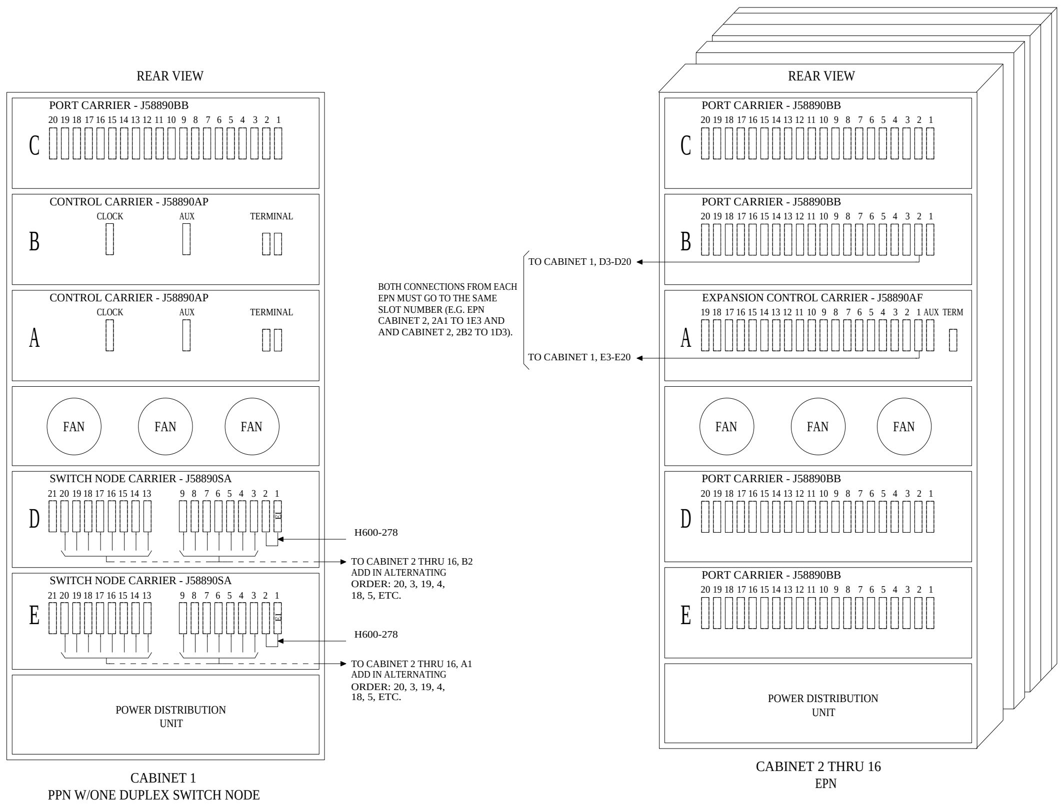


Figure 6-14. Critical-Reliability Fiber-Optic Connections through Center Stage Switch

Reseat DEFINITY LAN Gateway System

1. Reseat the LAN Gateway assembly into its backplane connectors.

Reseat DEFINITY AUDIX System

1. Reseat the AUDIX assembly to its backplane connectors.

Power Up System

1. At the cabinet containing the new switch node carrier, set the main circuit breaker to ON.
2. The system performs the level 4 rebooting process, loading the system program and default or current translations from the disk. Rebooting takes 5 to 11 minutes.

   NOTE:
   Ignore alarms for now.

3. If a new tape was made off-site at the FSAC or STS, insert it in the tape drive. Otherwise, make software modifications and then go to step 7.
4. Enter the **reset system 4 tape** command to copy the translations from tape to memory.
5. Remove the translated tapes and move the write-protect switch to record.
6. Re-insert the write-enabled tapes into the drives.
7. Clear any alarms.
8. Enter the **save translation tape** command if translation changes were made in Step 7 above.
9. Enter the **restore disk full** command to copy the translations from tape to disk.
10. After the system reboot is finished and all trouble cleared, verify that the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal operating mode.

Restart DEFINITY LAN Gateway System

1. Log onto the DEFINITY LAN Gateway.
2. When the main menu appears, select *Maintenance*.
3. Select *Reset System* from the *Maintenance* menu.
4. Select *Restart System* from the *Reset System* menu.

Resolve Alarms and Enable Alarm Origination

1. Examine the alarm log. Resolve any alarms using *DEFINITY Enterprise Communications Server Release 6 Maintenance for R6r*.
2. If the `Alarm Origination Activated` field administration that you previously noted is already set to **y**, be sure to enable Alarm Origination. Otherwise you do not need to enable Alarm Origination (proceed to the next section).
3. Enter **change system-parameters maintenance** and press Enter.

   The name of the `Alarm Origination Activated` field was changed to `Alarm Origination to OSS Numbers` to support more than 1 OSS.
4. Enter **first-only** in this field to enable Alarm Origination (to the first OSS, which should be INADS).

   Be sure to enter **y** in both `Cleared Alarm Notification` and `Restart Notification` fields. Press Enter.
5. Enter **save translation disk** and press Enter.

   If you have lost the previous administration of the `Alarm Origination` field, you may register the system again with the INADS Database Administrator at the TSC. The INADS Administrator enables Alarm Origination as part of the registration process.

WARNING:
If you do not enable Alarm Origination when the customer has purchased a services contract, the switch will not report any alarm to the TSC automatically, causing the TSC to be unable to fulfill the services contract.

Add a Switch Node Carrier (High or Critical Reliability)

To upgrade to a high or critical reliability R6r, a second switch node carrier is added either to an empty “E” carrier position of an existing multi-carrier port network or to the “D” carrier position (as the duplicate switch node carrier) of an existing multi-carrier cabinet.

NOTE:
To avoid moving a port carrier, the preferred practice is to place the new switch node carrier in an empty carrier position.

Service Interruption

1. Since the addition of the second switch node carrier requires a service interruption, notify the customer in advance as to when the addition will be carried out.

Verify System Status

1. Before proceeding, the system should be examined for alarms, and every problem should be corrected. The system must be alarm-free.

Disable Alarm Origination

1. Enter **change system-parameters maintenance** and press Enter.
2. Make a note of the `Alarm Origination Activated` field administration. If the feature is enabled, enter **n** in this field and press Enter to disable Alarm Origination.

   WARNING:
   If you do not disable Alarm Origination before making changes to the switch, the switch may generate alarms, resulting in unnecessary trouble tickets. Reducing redundant and unnecessary trouble tickets.

   NOTE:
   For some releases of the system software, you may also need to disable `Cleared Alarm Notification` and `Restart Notification` before submitting the form.

Save Translations

1. Log in at the management terminal.
2. If the system is high- or critical-reliability, enter **status spe** and press Enter to verify that the standby SPE is refreshed and that the standby disk is in service.
3. Enter **save translation [spe-a or both] disk** and press Enter. This command instructs the system to take all translation information in memory and write it to the disk(s).
4. If the system contains a TN750/B Announcement circuit pack, enter **display announcements** and press Enter.
5. If administered recorded announcements are listed, enter **list configuration software-version** press Enter. Check Page 2 of this form to find out when the announcements were last saved. Save the current announcements using **save announcements disk** and press Enter.
6. Enter **backup disk [spe-a** or **both]** and press Enter. This instructs the system to backup the current information on disk to the system tape(s).
7. Update backup tape(s), if required.

Shut Down DEFINITY LAN Gateway System

If a DEFINITY LAN Gateway system resides in the control cabinet to be upgraded, prepare to shut down the DEFINITY LAN Gateway assembly and allow the disk to completely spin down.

CAUTION:
Make sure that you save the system parameters if you plan to reuse the current system.

WARNING:
Neglecting to shut down a DEFINITY LAN Gateway assembly before powering down the system cabinet where it resides can damage the LAN Gateway disk.

1. Log onto the DEFINITY LAN Gateway. See the *DEFINITY Communications System Generic 3 Installation, Administration and Maintenance of CallVisor ASAI over the DEFINITY LAN Gateway*.
2. When the main menu appears, select *Maintenance*.
3. Select *Reset System* from the *Maintenance* menu.
4. Select *Shutdown* from the *Reset System* menu.
5. Unseat the LAN Gateway assembly from its backplane connectors.

Shut Down DEFINITY AUDIX System

1. Shut down the AUDIX assembly and allow the disk to completely spin down. Refer to ''DEFINITY AUDIX Power Procedures'' on page 6-80.

   WARNING:
   Neglecting to shut down an AUDIX assembly before powering down the system cabinet where it resides can damage the AUDIX disk.

2. Unseat the AUDIX assembly from its backplane connectors.

Power Down System

1. At the PPN, set the main circuit breaker to OFF.

Remove Doors and Panels and Disconnect Cables

1. Remove the front door from the multi-carrier cabinet where the switch node carrier will be installed.
2. With the cable retainer in front of you and the part number visible, locate the slot that is almost vertical. (This slot is adjacent to the part number.) Insert a flat-blade screwdriver with a wide blade (1/4-inch recommended) into the slot, and twist the screwdriver. The retainer will snap open easily so that the cable can be removed.
3. At the cabinet, disconnect the previously labeled cables associated with the carrier to be removed.
4. Remove the rear doors from the cabinet.

Remove Circuit Packs from Port Carrier D

NOTE:
Skip these steps if a switch node carrier is being added to an empty carrier position.

1. To ensure that circuit packs and power units in the "D" carrier are properly replaced, label each component with its slot number.
2. Disconnect the power cords from the power units in the "D" carrier.
3. Remove all circuit packs and power units from carrier "D." Store the circuit packs in the static-proof packaging.
4. Remove the circuit pack blanks from slots that do not contain circuit packs.
5. Remove the front trim plate from the "D" carrier by pulling straight off.

Remove Port Carrier D

NOTE:
Note the position of the TDM/LAN cables before disconnecting.

1. If a switch node carrier is being installed in the “D” position of an EPN, remove the TDM/LAN cable from between the “D” and “A” carriers.

   For other EPNs or the PPN, disconnect 1 end of the TDM/LAN cable (between the “D” and “A” carriers) from the “D” carrier.

2. Remove the ZAHF4 TDM/LAN bus terminator from slot “21” of the “D” carrier.
3. Disconnect 1 end of the 8 ground straps (between the “D” and “E” carriers) from the “D” carrier (See Figure 6-11). These straps will be reconnected to the new “D” carrier.
4. Disconnect 1 end of the 8 ground straps (between the “D” and “A” carriers) from the “D” carrier (See Figure 6-11). These straps will be reconnected to the new “D” carrier.
5. Disconnect the “P1” (small 9-pin) connector from the “D” carrier. Move the cable into a position where it will not interfere with removing the carrier.
6. Remove the 4 screws (top 2 first) holding the “D” carrier to the cabinet frame. Use a long-handle screwdriver or 5/16-inch socket with a 10-inch extension.
7. Behind the “D” carrier in a “DEFINITY style” cabinet, remove the 2 screws holding the “D” carrier to the cabinet frame.
8. Slide the carrier forward 1 to 2 inches; then, from the back, be sure that no cables or wiring harnesses are caught on the cabinet/carrier framework.

   CAUTION:
   Cables and wiring harnesses can be damaged if they catch on the framework and if too much pressure is applied in removing the carrier.

9. Remove the carrier by sliding it out the front of the cabinet.

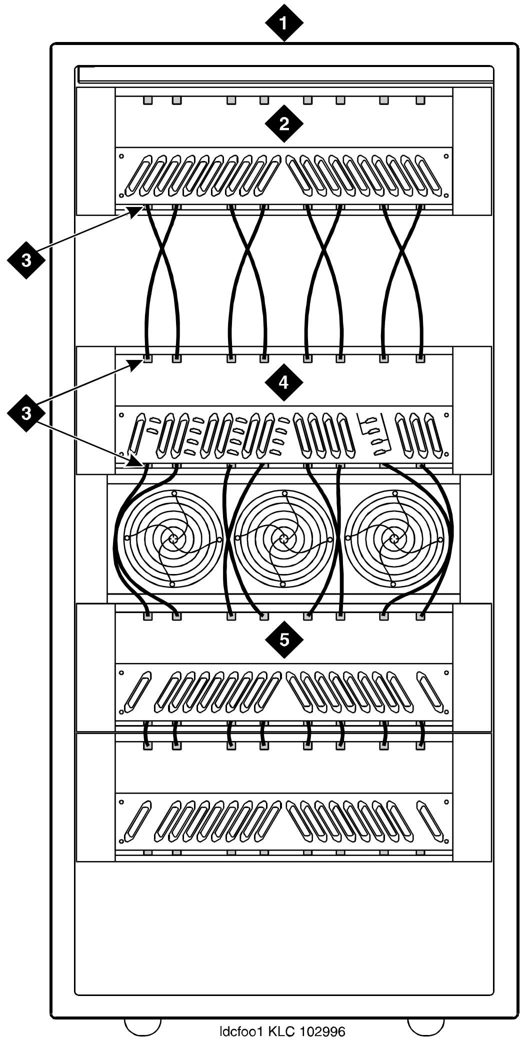


Figure Notes

1. Port Carrier (“C” Position)
2. Ground Jumpers
3. Control Carrier (“A” Position)
4. Switch Node Carrier (“D” Position)
5. Switch Node Carrier (“E” Position)

Figure 6-15. Locations of Grounding Jumpers

Prepare New Switch Node Carrier D

1. Visually inspect the new carrier for any damage. Verify that the backplane pins are not bent.
2. Place the switch node carrier on the floor so that the rear of the carrier faces up.
3. Verify that the four AHF105 switch node (SN) bus terminators are installed on the “D” carrier to the pin-field blocks marked “SNTRM” (top and bottom portions of slots “02” and “20”). See Figure 6-16. The SN bus terminators are attached with the components on the left side as viewed from the rear.
4. At the rear connector panel, determine which connectors will have a cable attached, and install a 4C cable retainer on each of these connectors.

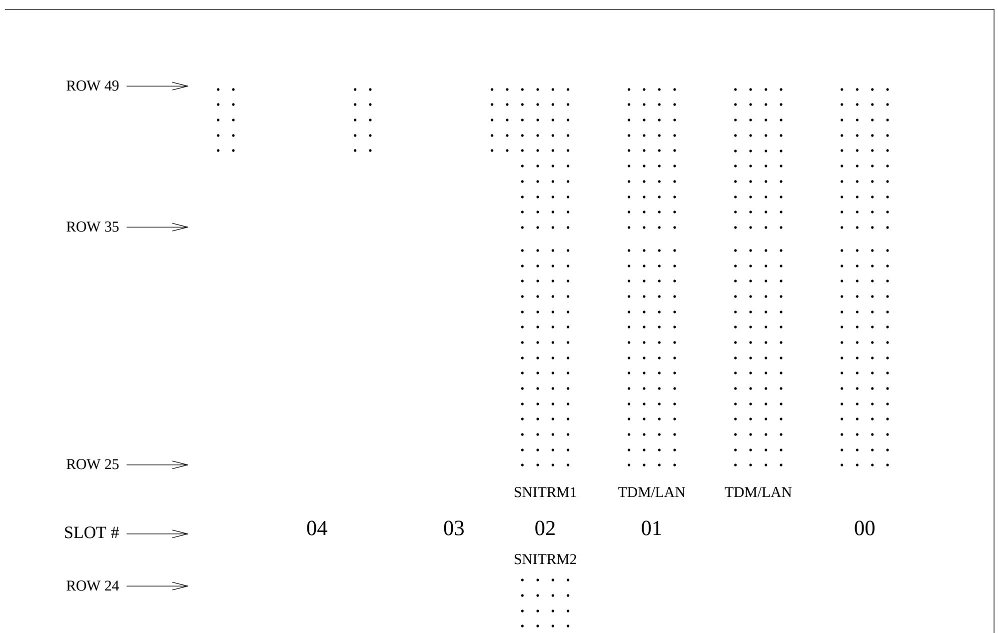


Figure 6-16. ICC Connections for Switch Node Carrier

Install New Switch Node Carrier D

1. Install the J58890SA switch node carrier in position “D” by lining up the plastic alignment tips on the top rear of the carrier with the screw holes in the cabinet. These alignment tips will support the carrier while the screws are being replaced. Ensure that the power cords are properly placed in the slots at the sides of the carrier.

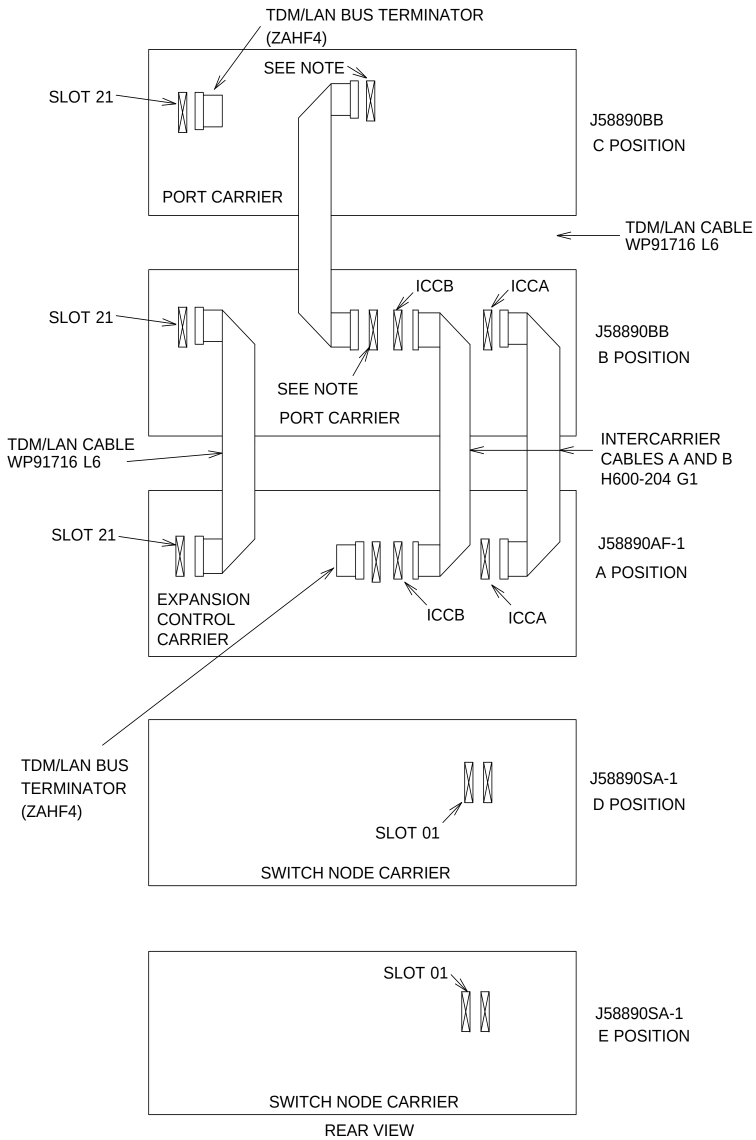
2. Fasten the carrier into position with 4 self-tapping screws saved from the removal of the old carrier.

   CAUTION:
   Carefully realign the threads on the self-tapping screws by turning them clockwise 1 turn before tightening them to avoid stripping the threads out of the framework.

3. Behind the carrier in a “DEFINITY style” cabinet, replace the 2 screws saved from the removal of the old carrier.
4. Connect the “P1” (small) connector to the “D” carrier. If necessary, to get enough slack in the cables, cut the tie wrap holding the intercabinet cable from the upright in the area being installed. Snap the connector lock into place to ensure the connection is properly made.
5. Connect the 8 ground straps from the “E” carrier to the new “D” carrier. See Figure 6-16. These straps were left connected to the “E” carrier when the old “D” carrier was removed.
6. Connect the 8 ground straps from the “A” carrier to the new “D” carrier. See Figure 6-16. These straps were left connected to the “A” carrier when the old “D” carrier was removed.
7. For an AC-powered switch node carrier, install the 2 new carrier-ground straps. One strap connects ground point “1” to the D-carrier frame (on the right side), and the other connects ground point “8” to the D-carrier frame (on the left side).

   NOTE:
   DC-powered carriers do not use these carrier-ground straps.

8. If a switch node carrier is being installed in the “D” position of the PPN, install the TDM/LAN cable (between the “E” and “D” carriers) to the pin-field block marked “TDM/LAN” on the right side of the both carriers. See Figure 6-17 and Table 6-3.
9. Also, for the PPN, connect the loose end of the TDM/LAN cable (between the “A” and “D” carriers) to the other pin-field block marked “TDM/LAN” on the right side of the “D” carrier. See Figure 6-17 and Table 6-3. The other end remained connected to the “A” carrier when the old carrier was removed.



NOTE:

ON PORT CARRIER J68890BB-1, CONNECT TDM/LAN CABLE OR TDM/LAN TERMINATOR TO SLOT 02. ON PORT CARRIERS J58890BB-2 AND -3, CONNECT THE TDM/LAN CABLE OR TDM/LAN TERMINATOR TO SLOT 1.

Figure 6-17. TDM/LAN Connections for Critical Reliability R6r EPN

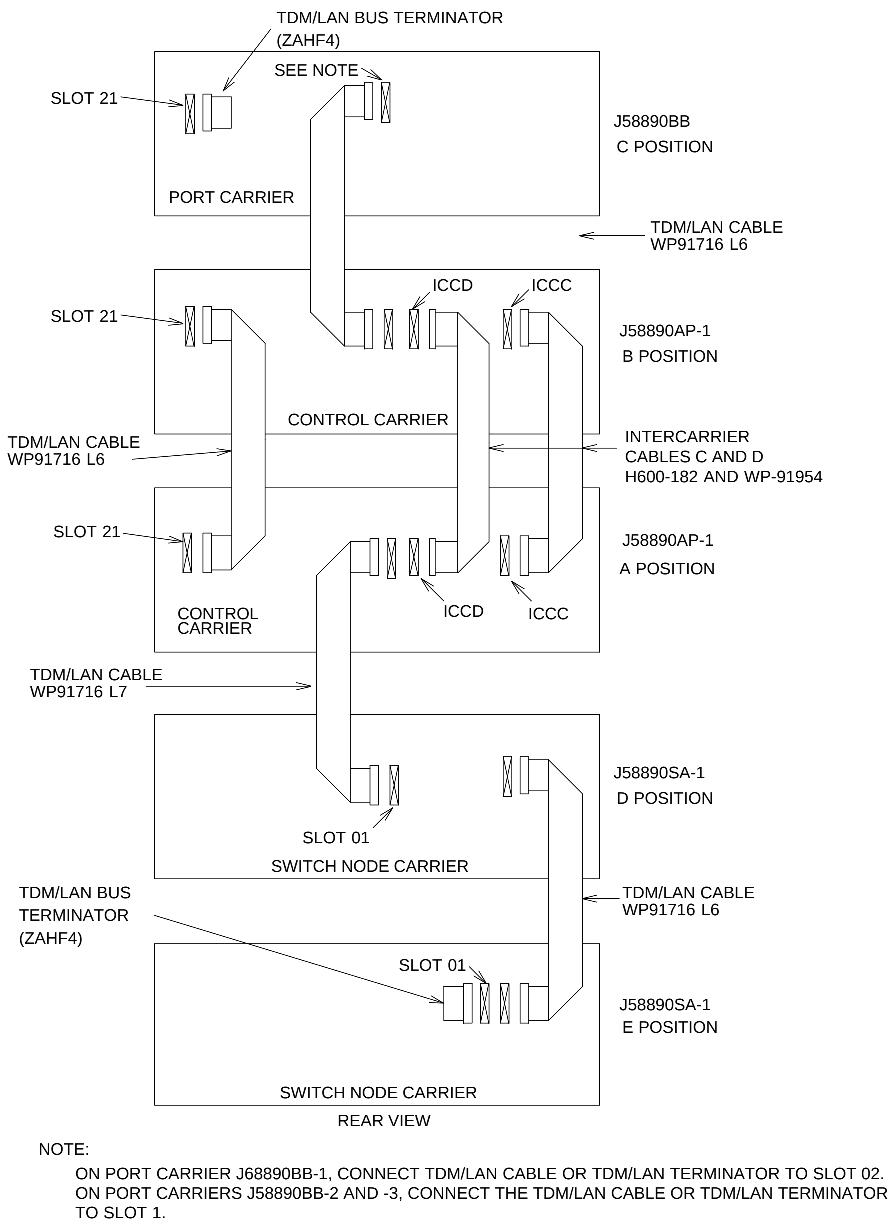


Figure 6-18. TDM/LAN Connections for Critical Reliability R6r PPN

Table 6-3. TDM/LAN Connections

"J" Number	Carrier Type	LHS Slot	RHS Slot
J58890B-1	Port	21	02
J58890B-2	Port	21	01
J58890B-3	Port	21	01
J58890AP	Control	21	02

10. If a switch node carrier is being installed in the "D" position of an EPN, verify that the ZAHF4 TDM/LAN bus terminator is installed at slot "02" of expansion control carrier "A". See Figure 6-18.

    If a switch node carrier is being installed in the "E" position of an EPN, verify that the ZAHF4 TDM/LAN bus terminator is installed at slot "21" of port carrier "D."

    For a PPN, install the ZAHF4 TDM/LAN bus terminator at slot "01" of switch node carrier "E."
11. Install the front trim plates on the "D" carrier.
12. Install the new power units into the carrier. One 649A is installed on the left and right sides of the carrier.
13. Connect the power cords to the power units. The power cords are the white cables equipped with plugs that are run through the slots in the front of each carrier.

Install Circuit Packs

1. Install the new circuit packs into carrier "D." Use the decal and the upgrade configuration document (provided with the equipment) as a guide.
2. Install circuit pack blanks in slots not equipped with circuit packs.

Interconnect Port Networks

1. Behind the PPN cabinet (see Figure 6-14):
   a. Connect the metallic intracarrier cable between slots 1E01 and 1E02.
   b. Connect the metallic intracarrier cable between slots 1D01 and 1D02.
2. Behind switch node carrier E of PPN cabinet 1 (see Figure 6-14):
   c. For each EPN, install one 9823-type lightwave transceiver on the following order of slots: 1E20, 1E03, 1E19, 1E04, 1E18, 1E05, and so forth.
   d. Connect 1 end of each fiber optic cable to each lightwave transceiver, just installed.
   e. Carefully attach the fiber optic cables (with cable ties) to the wall of the cable tray at the built-in cable-tie positions.
3. Behind control carrier A of each EPN cabinet:
   a. Install a lightwave transceiver on slot A01.
   b. Connect the other end of the fiber optic cable to the lightwave transceiver, just installed.
   c. Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable-tie positions.
   d. Coil up the surplus length of fiber optic cable, and carefully attach the coil to the wall of the cable tray.
4. Behind switch node carrier D of PPN cabinet 1 (See Figure 6-14):
   a. For each EPN, install a lightwave transceiver on the following order of slots: 1E20, 1E03, 1E19, 1E04, 1E18, 1E05, and so forth.
   b. Connect 1 end of each fiber optic cable to each lightwave transceiver, just installed.
   c. Carefully attach the fiber optic cables (with cable ties) to the wall of the cable tray at the built-in cable-tie positions.
5. Behind port carrier B of each EPN cabinet:
   a. Install a lightwave transceiver on slot B02.
   b. Connect the other end of the fiber optic cable to the lightwave transceiver, just installed.
   c. Carefully attach the fiber optic cable (with cable ties) to the wall of the cable tray at the built-in cable-tie positions.
   d. Coil up the surplus length of fiber optic cable, and carefully attach the coil to the wall of the cable tray.

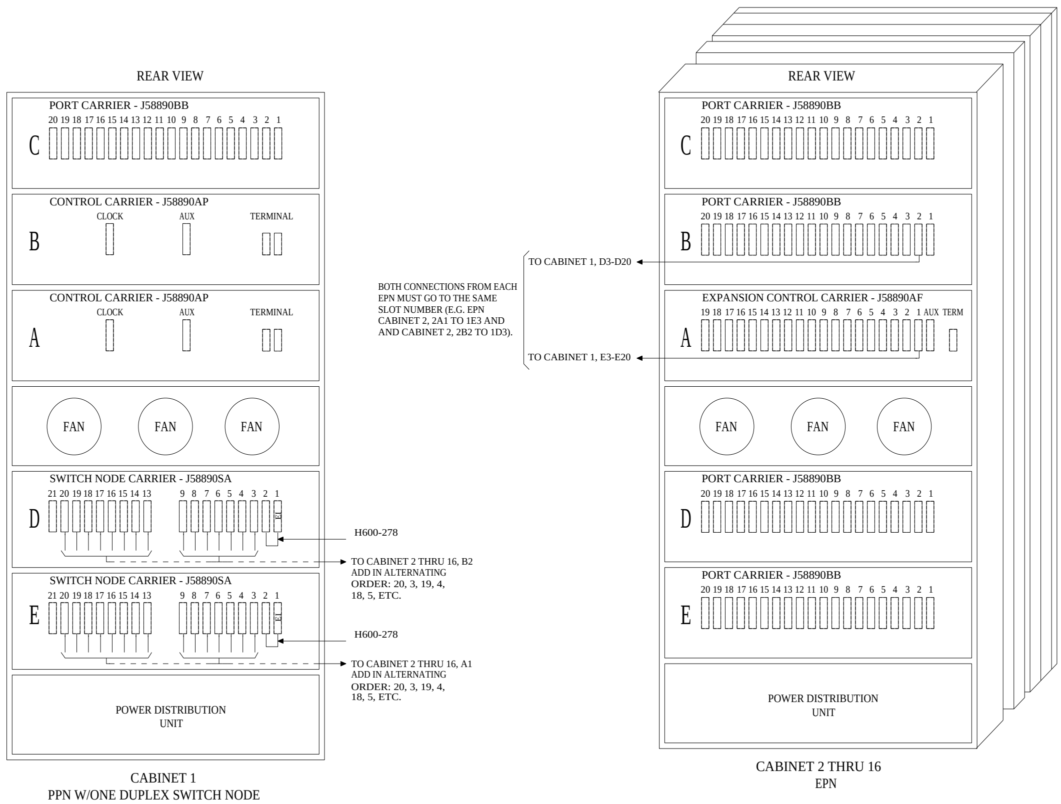


Figure 6-19. Critical-Reliability Fiber-Optic Connections through Center Stage Switch

Reseat DEFINITY LAN Gateway System

1. Reseat the LAN Gateway assembly into its backplane connectors.

Reseat DEFINITY AUDIX System

1. Reseat the AUDIX assembly to its backplane connectors.

Power Up System

1. At each EPN, if present, set the main circuit breaker to ON.
2. At the PPN, set the main circuit breaker to ON.
3. The system performs the level 4 rebooting process, loading the system program and default or current translations from the disk. Rebooting takes 5 to 11 minutes.

   NOTE:
   Ignore alarms for now.

4. If new tapes were made off-site at the FSAC or STS, insert them in the tape drives. Otherwise, make software modifications and then go to Step 8.
5. Enter the **reset system 4 tape** command to copy the translations from tape to memory.
6. Remove the translated tapes and move the write-protect switch to record.
7. Re-insert the write-enabled tapes into the drives.
8. Clear any alarms.
9. Enter the **save translation [both] tape** command if translation changes were made in Step 8 above.
10. Enter the **restore disk [both] full** command to copy the translations from tape to disk.
11. After the system reboot is finished and all trouble cleared, verify that the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal operating mode.

Restart DEFINITY LAN Gateway System

1. Log onto the DEFINITY LAN Gateway.
2. When the main menu appears, select *Maintenance*.
3. Select *Reset System* from the *Maintenance* menu.
4. Select *Restart System* from the *Reset System* menu.

Enable PNC Duplication

All non-duplicated SNIs to SNI fiber links are automatically duplicated.

1. Enter the **change system-parameters customer-options** command. On Page 2 of the form, set the `PNC Duplication?` field to **yes**. Press Enter.
2. Enter the **change system-parameters duplication** command. Change the `Enable operation of PNC duplication?` field to **yes**. Press Enter.
3. Enter the **status pnc** command. Verify the `Duplicated ?` field is **yes**.

Resolve Alarms and Enable Alarm Origination

1. Examine the alarm log. Resolve any alarms using *DEFINITY Enterprise Communications Server Release 6 Maintenance for R6r*.
2. If the `Alarm Origination Activated field` administration that you previously noted is already set to **y**, be sure to enable Alarm Origination. Otherwise you do not need to enable Alarm Origination (proceed to the next section).
3. Enter **change system-parameters maintenance** and press Enter.

   The name of the `Alarm Origination Activated` field was changed to `Alarm Origination to OSS Numbers` to support more than 1 OSS.
4. Enter **first-only** in this field to enable Alarm Origination (to the first OSS, which should be INADS).

   Be sure to enter **y** in both `Cleared Alarm Notification` and `Restart Notification` fields if they are not enabled already. Press Enter.
5. Enter **save translation [spe-a both] disk** and press Enter.

   If you have lost the previous administration of the `Alarm Origination` field, you may register the system again with the INADS Database Administrator at the TSC. The INADS Administrator enables Alarm Origination as part of the registration process.

   WARNING:
   If you do not enable Alarm Origination when the customer has purchased a services contract, the switch will not report any alarm to the TSC automatically, causing the TSC to be unable to fulfill the services contract.

Add Center Stage Switch

Because of the numerous installation possibilities for center stage switches, this section is intended to provide general installation procedures only. For exact requirements per site, contact your Lucent technologies representative.

The center stage switch (CSS) is comprised of 1, 2, or 3 switch nodes (SNs). Each SN consists of a switch node carrier (SNC), or 2 SNCs for high reliability. Each SNC supports up to 16 switch node interface (SNI) circuit packs and up to 16 EPNs. Connections between the CSS and PNs, and between SNs within the CSS, are generally made with fiber optic links. Figure 6-20 shows 1 switch node used as a center stage switch for 11 EPNs.

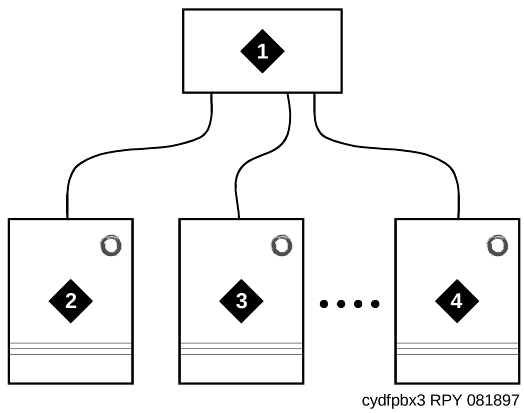


Figure Notes

1. Switch Node 1
2. PPN Cabinet
3. EPN Cabinet 1
4. EPN Cabinet 11

Figure 6-20. Single Switch Node CSS

Figure 6-21 shows 2 SNs used as a CSS for up to 23 EPNs. Use this configuration when high inter-SN traffic is expected.

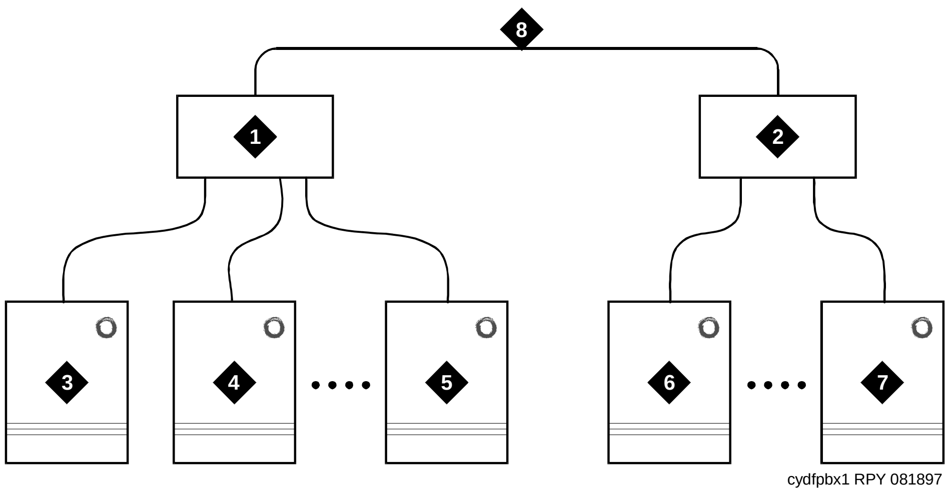


Figure Notes

1. Switch Node (SN) 1
2. Switch Node 2
3. PPN Cabinet
4. EPN Cabinet 1
5. EPN Cabinet 11
6. EPN Cabinet 12
7. EPN Cabinet 23
8. Inter-SN Connection (4 fibers)

Figure 6-21. 2-Switch Node CSS with High Inter-SN Traffic

Fiber Engineering for 2 SNs

Switches with 2 SNs are connected by 1 to 7 fiber links to provide sufficient switching fabric at the CSS. The traffic in all locales within a single SN does not require engineering. Only traffic that links from locales in 1 SN to the other SN (and vice versa) must be engineered. The traffic that links across these fibers is simply the sum of the traffic that links to locales located in the other SN.

Figure 6-22 shows 2 SNs used as a CSS for up to 29 EPNs. Use this configuration when low inter-SN traffic is expected.

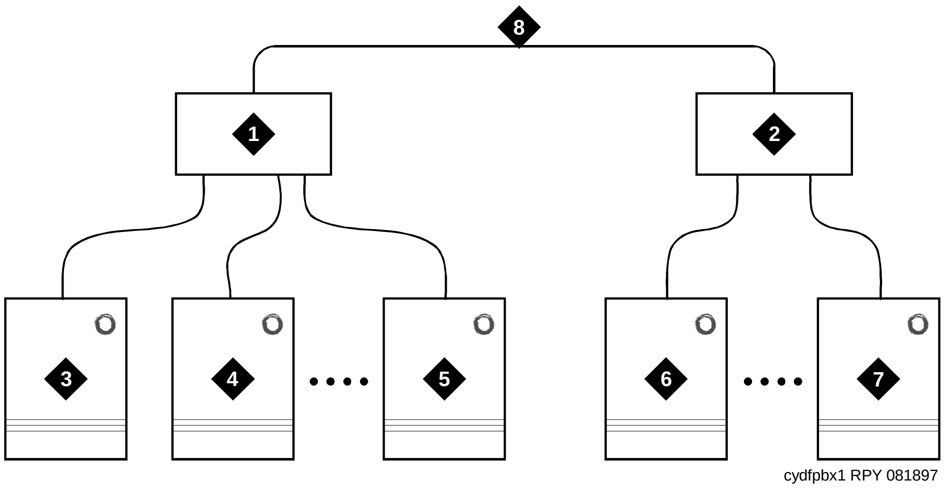


Figure Notes

1. Switch Node (SN) 1
2. Switch Node 2
3. PPN Cabinet
4. EPN Cabinet 1
5. EPN Cabinet 14
6. EPN Cabinet 15
7. EPN Cabinet 29
8. Inter-SN Connection (1 fiber)

Figure 6-22. 2-SN CSS with Low Inter-SN Traffic

Fiber Engineering for 2 SNs

Switches with 2 SNs are connected by 1 to 7 fiber links to provide sufficient switching fabric at the CSS. The traffic in all locales within a single SN does not require engineering. Only traffic that links from locales in 1 SN to the other SN (and vice versa) must be engineered. The traffic that links across these fibers is simply the sum of the traffic that links to locales located in the other SN.

Figure 6-23 shows 3 SNs used as a CSS for up to 31 EPNs. Use this configuration when high inter-SN traffic is expected.

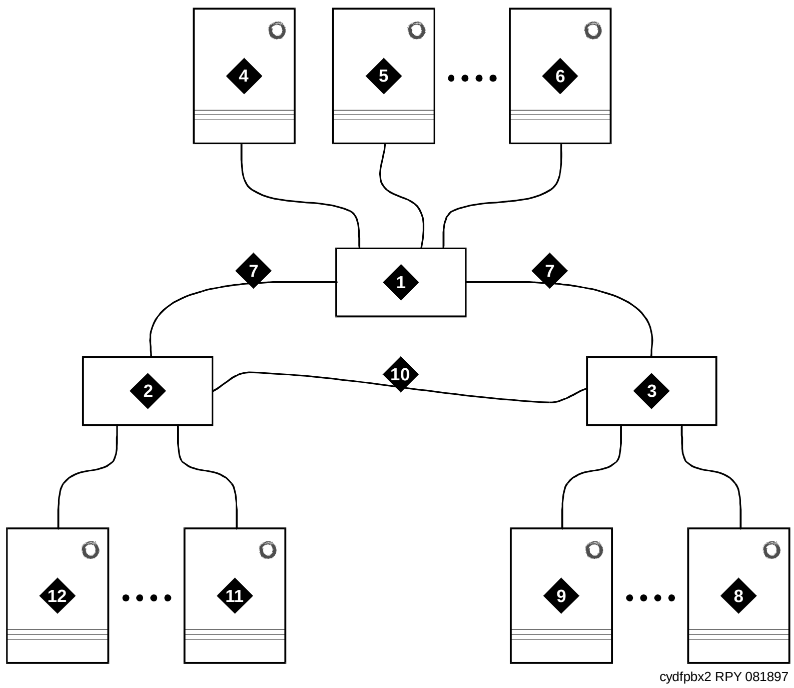


Figure Notes

1. Switch Node (SN) 1
2. Switch Node 2
3. Switch Node 3
4. PPN Cabinet
5. EPN Cabinet 1
6. EPN Cabinet 9
7. Inter-SN Connections (3 fibers)
8. EPN Cabinet 10
9. EPN Cabinet 20
10. Inter-SN Connection (2 fibers)
11. EPN Cabinet 21
12. EPN Cabinet 31

Figure 6-23. 3-SN CSS with High Inter-SN Traffic

Fiber Engineering for 3 SNs

Switches with 3 SNs are connected by 1 to 7 fiber links to provide sufficient switching fabric at the CSS. The traffic in all locales within a single SN does not require engineering. Only traffic that links from locales in 1 SN to another SN (and vice versa) must be engineered. The traffic that links across these fibers is simply the sum of the traffic that links to locales located in the other SN.

Figure 6-24 shows 3 SNs used as a CSS for up to 43 EPNs. Use this configuration when low inter-SN traffic is expected.

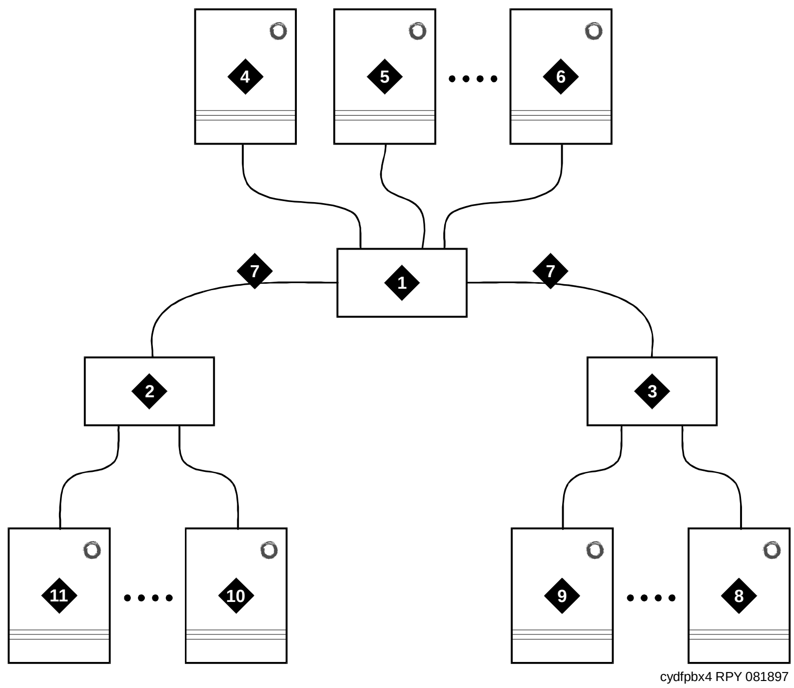


Figure Notes

1. Switch Node (SN) 1
2. Switch Node 2
3. Switch Node 3
4. PPN Cabinet
5. EPN Cabinet 1
6. EPN Cabinet 13
7. Inter-SN Connections (1 fiber)
8. EPN Cabinet 14
9. EPN Cabinet 28
10. EPN Cabinet 29
11. EPN Cabinet 43

Figure 6-24. 3-SN CSS with Low Inter-SN Traffic

Fiber Engineering for 3 SNs

Switches with 3 SNs are connected by 1 to 7 fiber links to provide sufficient switching fabric at the CSS. The traffic in all locales within a single SN does not require engineering. Only traffic that links from locales in 1 SN to another SN (and vice versa) must be engineered. The traffic that links across these fibers is simply the sum of the traffic that links to locales located in the other SN.

Add MCC Port Carriers

A new port carrier can be installed when additional features or equipment exceed the capacity of the present system. Port carriers are identified as B, C, D, and E except for a PPN cabinet with the duplication option. The “B” carrier is the second control carrier. PEC 63155 provides the necessary equipment for adding the carrier.

Add each new port carrier to a port network in the “B,” “C,” “D,” “E” order of carrier positions.

Before proceeding with the addition of a port carrier, ensure that 3 TN1650B Memory Circuit Packs exist in the system. Refer to the section entitled ‘‘Install Memory Circuit Pack’’ on page 1-9 for installation instructions.

Before proceeding with the addition of a port carrier, ensure that the TN1657 Disk Drive is of Vintage 4 (or higher). Refer to Chapter 1, ‘‘G3rV2, V3, or V4 to Release 6r with Memory Addition’’ for installation instructions.

Service Interruption

1. Since the addition of port carriers requires a service interruption, notify the customer in advance as to when the addition will take place.

Verify System Status

1. Before proceeding, examine the system for alarms. Every problem should be corrected. The system must be alarm-free.

Disable Alarm Origination

1. Enter **change system-parameters maintenance** and press Enter.
2. Make a note of the `Alarm Origination Activated` field. If the feature is enabled, enter **n** in this field and press Enter to disable Alarm Origination.

   You will enable this feature again in 1 of the final processes.

   WARNING:
   If you do not disable Alarm Origination before making changes to the switch, the switch may generate alarms, resulting in unnecessary trouble tickets. Reducing redundant and unnecessary trouble tickets is critical for measuring the quality of Lucent services and products.

NOTE:
For some releases of the software, disable `Cleared Alarm Notification` and `Restart Notification` before submitting the form.

Save Translations

1. Log in at the management terminal.
2. If the system is high- or critical-reliability, enter **status spe** and press Enter to verify that the standby SPE is refreshed and that the standby disk is in service.
3. Enter **save translation [spe-a** or **both] disk** and press Enter. This command instructs the system to take all translation information in memory and write it to the disk(s).
4. If the MCC port network contains a TN750 Announcement circuit pack, enter **display announcements** and press Enter.

   If administered recorded announcements are listed, enter **list configuration software-version** press Enter. Check Page 2 of this form to find out when the announcements were last saved.

   Save the current announcements using the **save announcements** command. Press Enter.
5. Enter **backup disk [spe-a** or **both]** and press Enter. This command instructs the system to backup the current information on disk to the system tape(s).
6. Update backup tape(s), if required.

Shut Down DEFINITY LAN Gateway System

If a DEFINITY LAN Gateway system resides in the control cabinet to be upgraded, prepare to shut down the DEFINITY LAN Gateway assembly and allow the disk to completely spin down.

CAUTION:
Make sure that you save the system parameters if you plan to reuse the current system.

WARNING:
Neglecting to shut down a DEFINITY LAN Gateway assembly before powering down the system cabinet where it resides can damage the LAN Gateway disk.

1. Unseat the LAN Gateway assembly from its backplane connectors in the carrier.

2. Log onto the DEFINITY LAN Gateway. See the *DEFINITY Communications System Generic 3 Installation, Administration and Maintenance of CallVisor ASAI over the DEFINITY LAN Gateway*.
3. When the main menu appears, select *Maintenance*.
4. Select *Reset System* from the *Maintenance* menu.
5. Select *Shutdown* from the *Reset System* menu.

Shut Down DEFINITY AUDIX System

1. If a DEFINITY AUDIX resides in the MCC port network to be upgraded, shut down the AUDIX assembly and allow the disk to completely spin down. Refer to ''DEFINITY AUDIX Power Procedures'' on page 6-80.

   WARNING:
   Neglecting to shut down an AUDIX assembly before powering down the system cabinet where it resides can damage the AUDIX disk.

2. Unseat the AUDIX assembly from its backplane connectors.

Power Down MCC Port Network

1. At the MCC port network, set the main circuit breaker to OFF.

Install Port Carrier

1. Open the rear doors.
2. Remove the blank port carrier panel by pushing outward on panel from the rear of the cabinet until the panel clears the 4 retaining pins on the cabinet frame. See Figure 6-25.
3. Use a screwdriver to loosen and remove the 4 retaining pins from the cabinet frame.
4. Align the carrier through the front of the system cabinet with the 4 pilot holes on cabinet frame.

   NOTE:
   Support the carrier by the molded-in support pins above the top mounting holes.

5. Insert self-tapping screws in the pilot holes and tighten.
6. Attach the magnetically-held nomenclature panel to front of carrier.
7. At the rear, install 8 grounding jumpers from the adjacent backplane to the new carrier backplane wiring (Figure 6-26 and Figure 6-27).

8. Connect a 9-pin D subminiature plug on right side of cabinet to P1 connector on carrier. If necessary, cut the tie wrap holding the intercabinet cable to the upright in the area of the carrier being installed.
9. Connect the TDM/LAN cable to the newly installed port carrier. See Figure 6-28, Figure 6-29, Figure 6-30, or Figure 6-31 and Table 6-4.
10. Install a 631AR, 631WA1, 631DA1, or 644A power unit in the leftmost slot and a 631BR, 631WB1, 631DB1, 645B, or 649A power unit in the right-most slot of installed port carrier as follows:
    a. Set the circuit breaker on the power unit to be added to OFF.
    b. Move locking slide on power unit to its leftmost position and open the lever.
    c. Align and slide the power unit into slot in the carrier until some resistance is felt.
    d. Lift the locking lever upward until it latches.
    e. Move the locking slide on power unit to its rightmost position.
    f. Connect a power cord inside the cabinet to the outlet on the power unit.
    g. Set the circuit breaker on the power unit to ON.
11. Install a TN736 power converter in the slot next to the 631AR power converter or a TN752 power converter in the slot next to the 631WA1 power converter on the left side of the carrier.

    NOTE:
    The TN736 is not required when the 631DB1 power unit is used in the J58890B-2 or J58890B-3 port carriers. It is required in the J58890B-1 port carrier regardless of which 631 power unit is provided. Use the TN752 or TN755B if the system is equipped with neon message waiting.

12. Install the port circuit packs in the carrier.
13. Connect the AC/DC power cords located inside the cabinet to the power units.
14. Install the rear panels around the port carrier.
15. Install cables from the port carrier to the MDF.
16. Install the cable access panel, as required.

Reseat DEFINITY LAN Gateway System

1. Reseat the LAN Gateway assembly into its backplane connectors in the carrier.

Reseat DEFINITY AUDIX System

1. Reseat the AUDIX assembly into its backplane connectors.

Power Up MCC Port Network

1. At the MCC port network, set the main circuit breaker to ON.
2. The system performs a level 4 rebooting process, loading the system program and default translations from the disk. Rebooting takes 5 to 11 minutes.
3. Refer to “Initialization and Recovery” and “LED Interpretation” chapters in *DEFINITY Enterprise Communications Server Release 6 Maintenance for R6r*, for circuit pack LED indications and management terminal displays that occur during system reboot.
4. After the system reboot is finished and all trouble cleared, verify that the EMERGENCY TRANSFER CONTROL switch is set to AUTO. This restores the system to the normal operating mode.

Restart DEFINITY LAN Gateway System

1. Log onto the DEFINITY LAN Gateway.
2. When the main menu appears, select *Maintenance*.
3. Select *Reset System* from the *Maintenance* menu.
4. Select *Restart System* from the *Reset System* menu.

Enter Added Translations

1. Enter added translation data as applicable using *DEFINITY Enterprise Communications Server Release 6 Administration and Feature Description*.

Resolve Alarms and Enable Alarm Origination

1. Examine the alarm log. Resolve any alarms using *DEFINITY Enterprise Communications Server Release 6 Maintenance for R6r*.
2. If the `Alarm Origination Activated` field administration is already set to **y**, be sure to enable Alarm Origination. Otherwise you do not need to enable Alarm Origination (proceed to the next section).
3. Enter **change system-parameters maintenance** and press Enter.

   The `Alarm Origination Activated` field was changed to `Alarm Origination to OSS Numbers` to support more than 1 OSS.

4. Enter **first-only** in this field to enable Alarm Origination (to the first OSS, which should be INADS).

   Be sure to enter **y** in both `Cleared Alarm Notification` and `Restart Notification` fields. Press Enter.

   NOTE:
   The INADS Database Administrator enables Alarm Origination as part of the registration process.

   CAUTION:
   If you do not enable Alarm Origination when the customer has purchased a services contract, the switch will not report any alarm to the TSC automatically, causing the TSC to be unable to fulfill the services contract.

Save Translations

1. If the system is high- or critical-reliability, enter **status spe** and press Enter to verify that the standby SPE is refreshed and that the standby disk is in service.
2. Enter **save translation [spe-a** or **both] disk** and press Enter. This command instructs the system to take all translation information in memory and write it to the disk(s).
3. If the MCC port network contains a TN750 Announcement circuit pack, enter **list configuration software-version** and press Enter.

   If Page 2 of this form shows that recorded announcements were saved, these announcements can be restored using the restore announcements command. Enter **restore announcements [disk | tape]** and press Enter.
4. Enter **backup disk [spe-a** or **both]** and press Enter. This command instructs the system to backup the current information on disk to the system tape(s).
5. Update backup tape(s), if required.

Update Port-Assignment Records

1. Update the customer's port-assignment records.

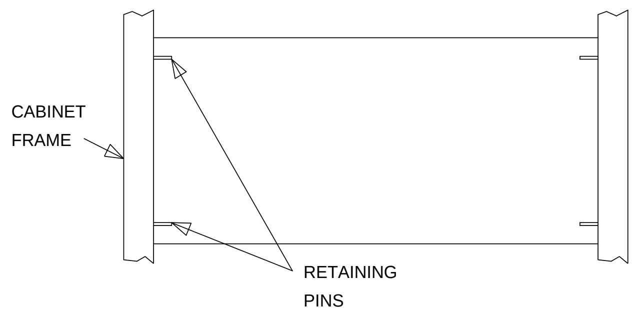


Figure 6-25. Blank Carrier Panel (Rear View)

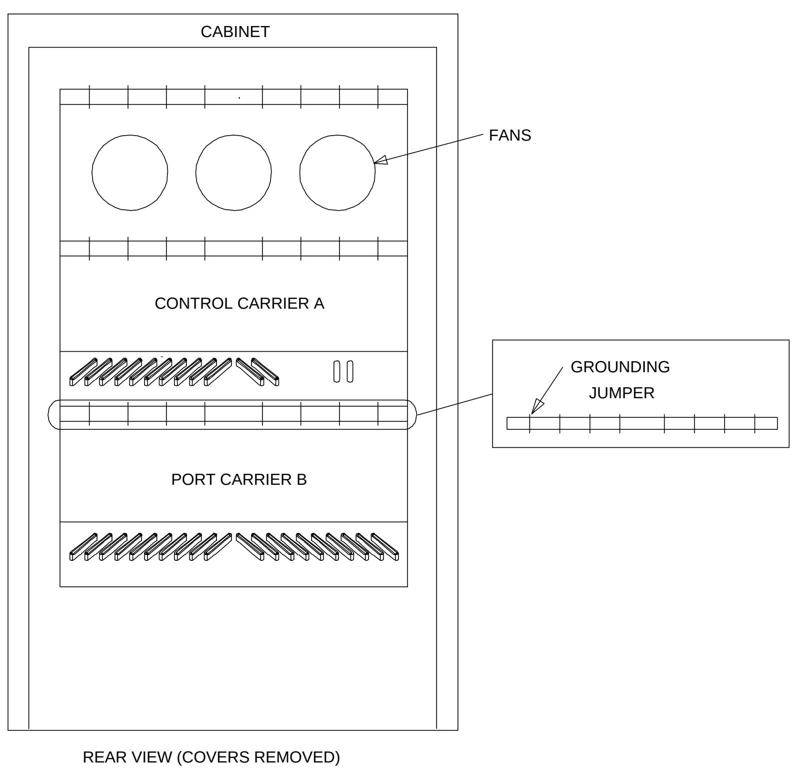


Figure 6-26. Locations of Grounding Jumpers (Small Cabinet)

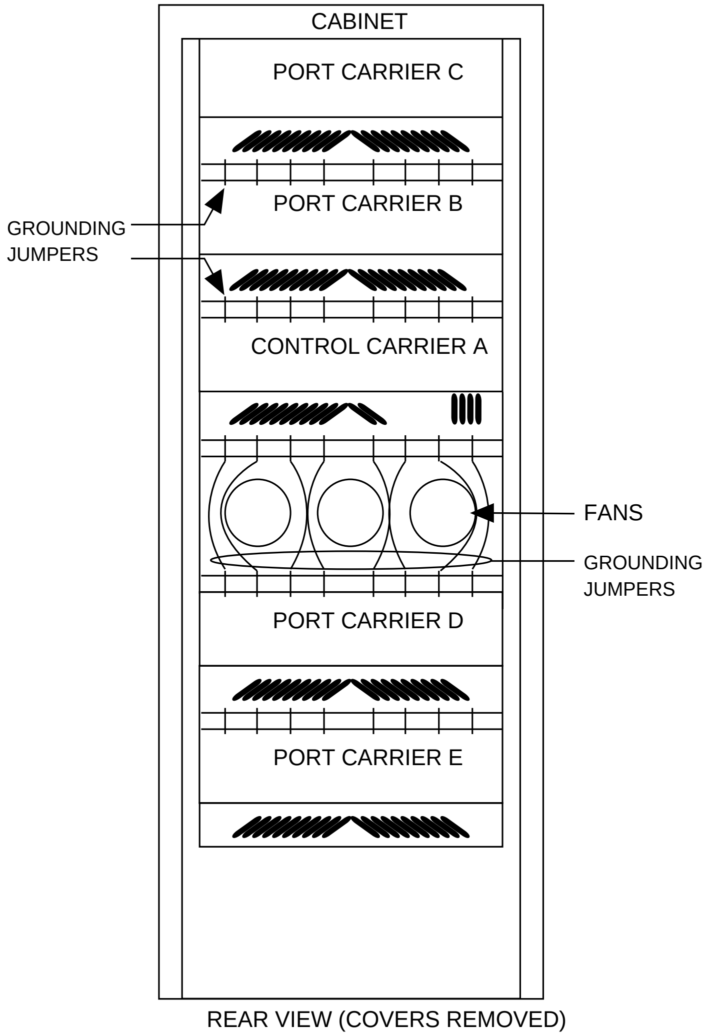


Figure 6-27. Locations of Grounding Jumpers

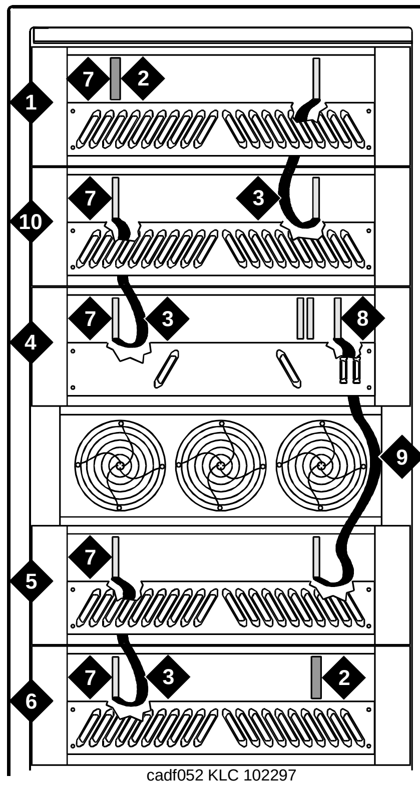


Figure Notes

1. Port Carrier (“C” Position)
2. ZAHF4 TDM/LAN Terminator
3. TDM/LAN Cable (WP91716L6)
4. Process Carrier (“A” Position)
5. Port Carrier (“D” Position)
6. Port Carrier (“E” Position)
7. Slot 21
8. Slot 00
9. TDM/LAN Cable (WP91716L7)
10. Port Carrier (“B” Position)
11. Slot TDM/LAN2 (20)

Figure 6-28. TDM/LAN Bus Connections for Standard-Reliability R5r PPN

NOTE:
On port carrier J58890BB-1, connect the TDM cable or TDM terminator to slot 02. On port carriers J58890BB-2 and J58890BB-3, connect the TMD cables or TDM terminator to slot 01. If the port carrier has J58890BB-1 and J58890BB-2 stencilled on it, treat it as a J58890BB-1.

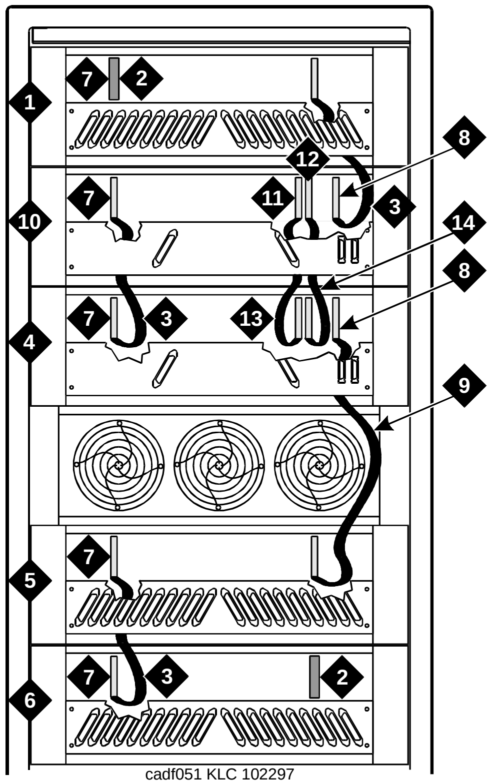
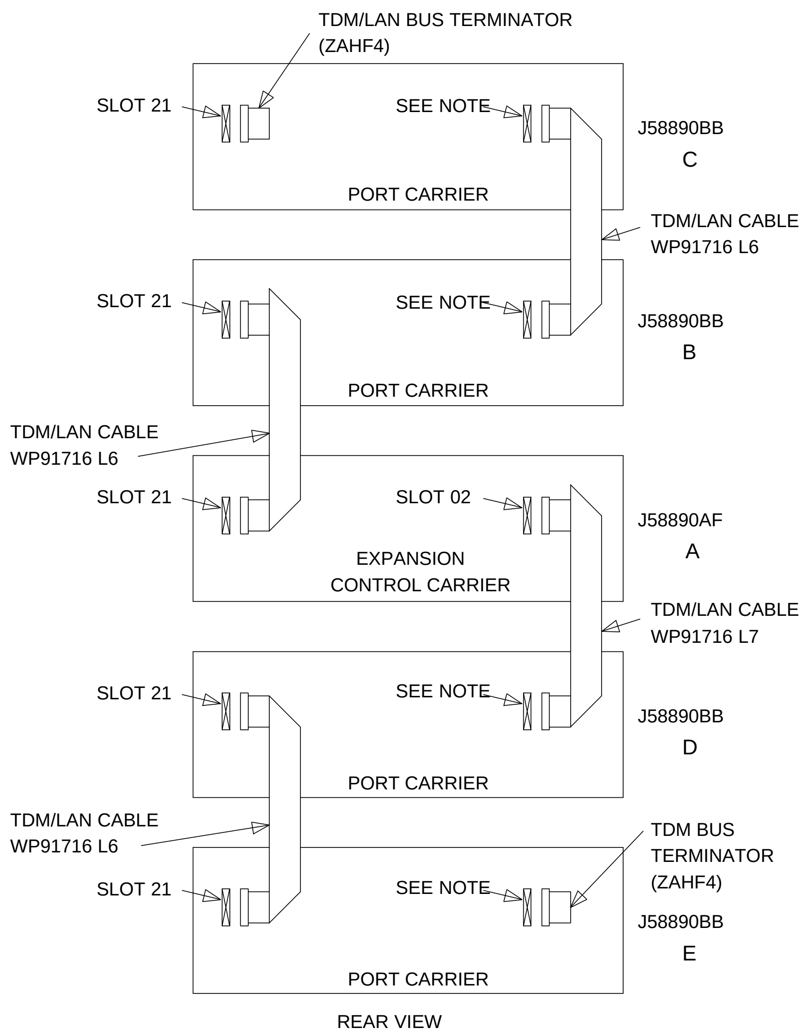


Figure Notes

1. Port Carrier (“C” Position)
2. ZAHF4 TDM/LAN Terminator
3. TDM/LAN Cable (WP91716L6)
4. Process Carrier (“A” Position)
5. Port Carrier (“D” Position)
6. Port Carrier (“E” Position)
7. Slot 21
8. Slot 00
9. TDM/LAN Cable (WP91716L7)
10. Process Carrier (“B” Position)
11. ICCD Connector
12. ICCC Connector
13. Intercarrier Cable D (WP-91954)
14. Intercarrier Cable C (H600-182)

Figure 6-29. TDM/LAN Bus Connections for Critical-Reliability PPN

NOTE:
On port carrier J58890BB-1, connect the TDM cable or TDM terminator to slot 02. On port carriers J58890BB-2 and J58890BB-3, connect the TMD cables or TDM terminator to slot 01. If the port carrier has J58890BB-1 and J58890BB-2 stencilled on it, treat it as a J58890BB-1.



NOTE:

ON PORT CARRIER J58890BB-1, CONNECT THE TDM CABLE OR TDM TERMINATOR TO SLOT 02.
ON PORT CARRIERS J58890BB-2 AND -3, CONNECT THE TDM CABLES TO SLOT 01.

Figure 6-30. TDM/LAN Bus Connections for Standard- or High-Reliability EPN

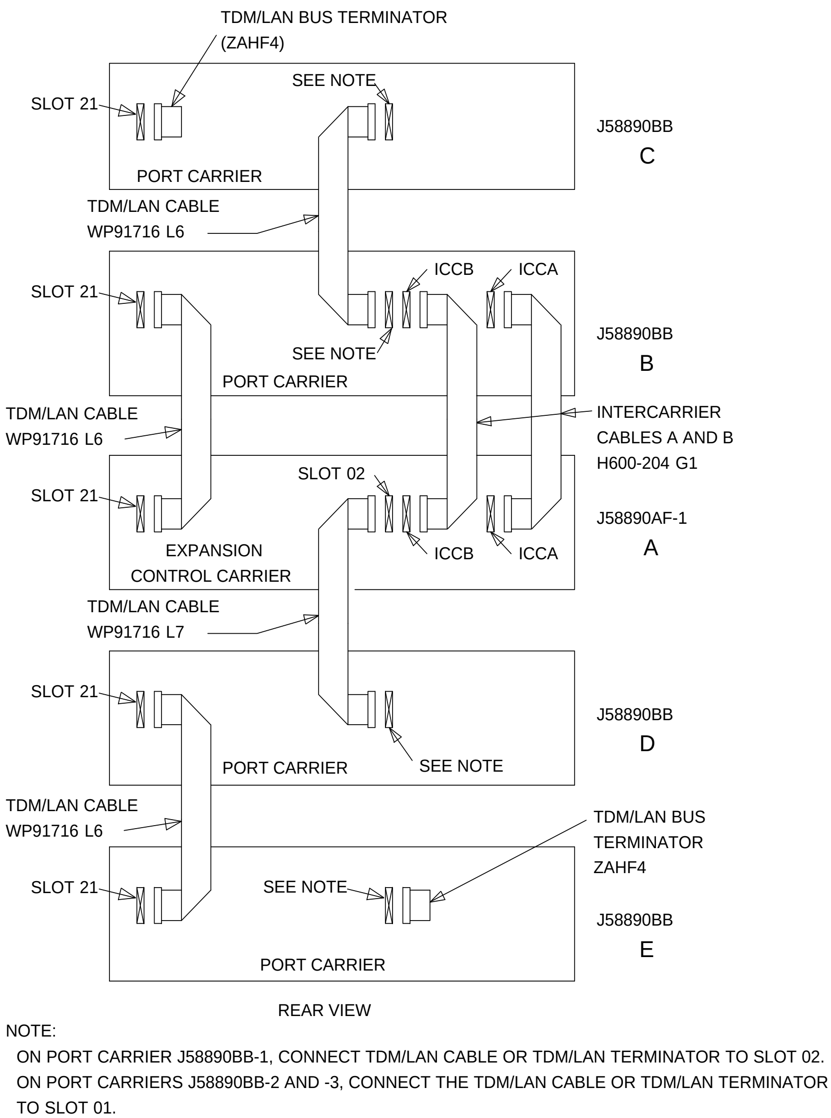


Figure 6-31. TDM/LAN Bus Connections for Critical-Reliability EPN

Table 6-4. TDM/LAN Cable Connections

“J” Number	Carrier Type	LHS Slot	RHS Slot
J58890B-1	Port	21	02
J58890B-2	Port	21	01
J58890B-3	Port	21	01
J58890AP	PPN Control “A” or “B”	20	03
J58890AF	AC EPN Control “A”	21	02
J58890AF	DC EPN Control “A”	21	02

DEFINITY AUDIX Power Procedures

Power Down the AUDIX System

A yellow caution sticker on the system's power unit notifies technicians to shut down the DEFINITY AUDIX System prior to powering down the system.

1. Log into the AUDIX System as **craft**.
2. Enter the **reset system shutdown** command. Press Enter *once*.

   NOTE:
   Do not press Enter again. This will force the AUDIX to shutdown immediately, dropping all active calls on the AUDIX.

3. The "SHUTDOWN Completed" message appears when the AUDIX is successfully shutdown. This takes about 2 minutes.
4. The AUDIX System can now be removed for service.

Power Up the AUDIX System

- If the AUDIX was removed from the cabinet:
  1. Re-install the AUDIX and allow it to boot up automatically.
  2. Check for AUDIX System errors.
- If the AUDIX remained in the cabinet but power was removed from the cabinet:
  1. Power up the cabinet. The AUDIX reboots automatically.
  2. Check for AUDIX System errors.
- If the AUDIX remained in the cabinet and the cabinet was *not* powered down:
  1. At the AUDIX console, hold the crtl key and enter **cc**.
  2. Enter **5** at the prompt. In about 2 minutes, the AUDIX boots up.
  3. When the system initialization is complete, log in as **craft**.
  4. Check for AUDIX System errors.

Fiber Link Administration

A

This appendix describes the steps required to administer fiber links on G3rV4 and later systems.

Before starting the administration process, verify the following:

1. Be sure all fiber optic transceivers and all fiber optic cables are correctly installed on the DS1 and/or DS1 converter circuit packs.
2. Verify connections to the Lightguide Interconnect Units (LIUs) or shelves, to the fiber multiplexers, and to the outside world. Refer to Appendix A in *DEFINITY Enterprise Communications Server Release 6 Installation and Test for Multi-Carrier Cabinets*.

Administer Fiber Links

Administer system fiber link configurations to match the hardware installed and according to the Fiber Optic Cable Running List.

NOTE:
Fiber link administration interacts with or depends upon other system features that must be administered before it.

Fiber link administration creates translation data by identifying the endpoint pairs for each link. Endpoints can be:

- An Expansion Interface (EI) circuit pack
- A Switch Node Interface (SNI) circuit pack

Circuit Pack Form

After installing the equipment (including circuit packs), the circuit packs must be administered *before* the fiber link is administered. Refer to *DEFINITY Enterprise Communications Server Release 6 Administration and Feature Description* for more information.

The following information describes general circuit pack administration information:

a. Use the Circuit Packs form to administer circuit packs to carrier slots. Install or administer the circuit packs (or assigned using the Circuit Packs form) before administering voice terminals, attendant consoles, or trunks.

b. Each page of the form represents 1 carrier in the cabinet shown on the command line.

c. Refer to *DEFINITY Communications System Generic 3 Planning and Configuration*, 555-230-601, for more information about circuit pack administration and port assignment records.

d. For initial installation, assign circuit packs to slots using the hardware configuration layout record from the factory or Customer Services Organization. Do not arbitrarily assign circuit packs to slots.

e. If the carrier type administered on the Cabinet Administration form does not match the physical hardware, question marks (??) may display in the Code fields.

f. When a circuit pack in a slot differs from what has been administered on the form, a "#" displays between the "Sfx" and "Name" fields to indicate a conflict.

g. For Release 6r, the number of slot fields displayed represents administrable slots for the given carrier type.

Administer Fiber Links on Simplex Systems

Administer the TN570 Expansion Interface and the TN574 or TN1654 DS1 Converter circuit packs.

1. Enter **change circuit packs**. Scroll through the pages on the form until the carrier containing the new circuit packs displays on the screen.
2. Enter the circuit packs into the appropriate slot locations on the form. Press Enter when finished.
3. Enter the **list fiber** command. All administered fiber connections display.
4. If a previously used fiber link is to be reused, enter **add fiber** <**number**>. If this is a new fiber link, enter **add fiber next**. The Fiber Link Administration screen appears. Each fiber link is identified by a fiber number.
   a. Enter **y** or **n** in the field `Is one endpoint remoted via DS1 Converter complex?` and press Enter.
   b. Enter the location of the TN570 and the TN574 or TN1654 circuit packs for both ENDPOINT-1 and ENDPOINT-2.
   c. Scroll to page 2 of the form. Enter **y** as applicable, in each `Facility Installed?` field (A, B, C, and D).
   d. In the `Bit Rate:` field, enter either **1.544** (T1) or **2.048** (E1).
   e. Enter the idle code in the `Idle Code MSB (1) . . . . LSB (8):` field. The default value is **11101000**. It is recommended that the default value be used unless it becomes absolutely necessary to change it. The “MSB” means Most Significant Bit, the “LSB” means Least Significant Bit.
   f. In the `Line Coding:` field, enter the line coding information. This information should match the line coding of the facility. For T1, example line coding is **b8zs**. For E1, example line coding is **hdb3**.

   NOTE:
   If this data is not correct, wideband errors (multimedia call handling) may occur.

5. For T1 sites, refer to ‘‘T1 Installations Only’’. For E1 sites, refer to ‘‘E1 Installations Only’’.

T1 Installations Only

1. The `Framing Mode:` field is display only and shows the hardware setting.
2. The `DS1CONV-1 Line Compensation:` and the `DS1CONV-2 Line Compensation:` fields are display only and show the hardware setting.
3. In the `Facility A Circuit ID:` field, enter an optional facility name that is unique to each facility (up to 40 alphanumeric characters). Press Enter.
4. A display similar to the following appears after the fiber link administration is completed:

   `RESET PORT-NETWORK 2 LEVEL 2 (COLD) PERFORMED`.

E1 Installations Only

1. Enter **y** or **n** in the `CRC?` field. The “CRC” means Cyclic Redundancy Check. This is an error detection algorithm.
2. The `Line Termination:` field is display only. A 75 (75 Ohms) or 120 (120 Ohms) typically displays.
3. In the `Facility A Circuit ID:` field, enter an optional facility name that is unique to each facility (up to 40 alphanumeric characters). Press Enter.
4. A display similar to the following appears after the fiber link administration is completed:

   `RESET PORT-NETWORK 2 LEVEL 2 (COLD) PERFORMED`.

All Installations

1. When the system reset is finished, enter **status port-network 2**. The Port Network Status screen appears. Verify that PNC Active is “up” and that the Service State is “in.”
2. A Span LED, on the front of the DS1 Converter circuit pack, must be on for each active facility administered. For example, if Facility A and Facility B are administered, then the top 2 Span LEDs on the circuit pack must be on (yellow). The yellow LEDs are on only if no problems were encountered during the administration of hardware. Span LEDs associated with non-administered facilities (C and D, in this example) should be off.
3. Perform a test call, if desired.

Administer Fiber Links on Duplex Systems

All non-duplicated Switch Node Interfaces to Switch Node Interface fiber links are automatically duplicated. When PNC Duplication is enabled on the System-Parameters Customer-Options form, the following administration forms change:

- Cabinet Form — Additional fields appear to allow administration of switch nodes to A-PNC and B-PNC sides of the CSS. The B-PNC is the duplicated hardware for the A-PNC. Either the A-PNC or the B-PNC can provide full customized service. B-PNC cannot be used in a simplex PNC configuration. Pairing of switch nodes is also defined here.
- Fiber Link Administration Form — Additional fields appear to allow administration of fiber links on the B-PNC side of the CSS. If an endpoint on the A-PNC side is administered as an SNI, its corresponding endpoint on the B-PNC side is determined (if switch nodes are paired in the cabinet form prior to this administration) and displayed. However, administration of the duplicate B-PNC link is not enforced until duplication is in full operation.
- Duplication-Related System-Parameters Form — An additional field appears to enable operation of PNC duplication.

1. Enter **change system-parameters customer-options**. On Page 2 of the form, set the `PNC Duplication?` field to **y**. Press Enter.
2. Enter **change system-parameters duplication**. Change the `Enable operation of PNC duplication?` field to **y**. Press Enter.
3. Enter **status pnc**. Verify the `Duplicated ?` field is **yes**.
4. Enter **list fiber**. All administered fiber connections display.
5. If a previously used fiber link is to be reused, enter **add fiber** <**number**>. If this is a new fiber link, enter **add fiber next**.

6. The Fiber Link Administration form appears. On Page 1 of the form:
   a. Enter the `Board Location:` for Endpoint-1 and Endpoint-2. This is the cabinet, carrier, and slot that identifies the physical location of an SNI or EI circuit pack that is the first endpoint of the fiber link. Repeat for the remaining endpoints.
   b. The `Board Type` field is display only and shows the type of circuit pack in Endpoint-1.
   c. In the `DS1CONV Board Location`: field, enter the cabinet, carrier, and slot that identifies the physical location of DS1 Converter circuit pack in the first endpoint of the duplicate fiber link. Endpoint-1's duplicate along with Endpoint-2's duplicate make up the duplicate fiber link called the B-PNC link.
   d. The `DS1CONV Board Type`: field is display only and shows the type of DS1 Converter circuit pack in Endpoint-1. The circuit pack type in Endpoint-1 (A-PNC) and Endpoint-1 (B-PNC) must match.
   e. In the `Is one endpoint remoted via a DS1 Converter Complex`? field, enter **y** to specify that a DS1 Converter complex is used to remote 1 endpoint. If **y** is entered, administer the A-PNC DS1 Converter Board Location on Page 1. The A-PNC DS1 Converter Board Type displays.
7. On Page 2 of the form:
   a. Administer the A-PNC DS1 Converter (DS1CONV) Attributes.
   b. Enter the DS1 Converter Facilities information. In the `Facility Installed`? field, enter **y** for all installed facilities (A, B, C, and D).
   c. In the `Bit Rate`: field, enter **1.544** for T1 operation or **2.048** for E1 operation.

      NOTE:
      One bit rate applies for all facilities within the same DS1 Converter complex. The `Bit Rate:` field displays only under Facility A.

   d. Enter the idle code in the `Idle Code MSB (1) . . . . LSB (8):` field. The default value is **11101000**. It is recommended that the default value be used unless it becomes absolutely necessary to change it. The "MSB" means Most Significant Bit, the "LSB" means Least Significant Bit.
   e. Enter the appropriate data in the `Line Coding:` field. This data should match the line coding of the facility. For T1, example line coding is **b8zs**. For E1, example line coding is **hdb3**.

f. Scroll to Page 3 and modify the fields as needed for the B-PNC.

NOTE:
If this data is not correct, wideband errors (such as multimedia call handling) may occur.

8. For T1 sites, refer to ''T1 Installations Only''. For E1 sites, refer to ''E1 Installations Only''.

T1 Installations Only

1. The `Framing Mode:` field is display only and shows the hardware setting.
2. The `DS1CONV-1 Line Compensation:` and the `DS1CONV-2 Line Compensation:` fields are display only and show the hardware setting.
3. In the `Facility A Circuit ID:` field, enter an optional facility name that is unique to each facility (up to 40 alphanumeric characters). Press Enter.
4. A display similar to the following appears after the fiber link administration is completed:

   `RESET PORT-NETWORK 2 LEVEL 2 (COLD) PERFORMED`.

E1 Installations Only

1. Enter **y** or **n** in the `CRC?` field. The "CRC" means Cyclic Redundancy Check. This is an error detection algorithm.
2. The `Line Termination:` field is display only. A 75 (75 Ohms) or 120 (120 Ohms) typically displays.
3. In the `Facility A Circuit ID:` field, enter an optional facility name that is unique to each facility (up to 40 alphanumeric characters). Press Enter.
4. A display similar to the following appears after the fiber link administration is completed:

   `RESET PORT-NETWORK 2 LEVEL 2 (COLD) PERFORMED`.

All Installations

1. When the system reset is finished, enter **status port-network 2**. The Port Network Status screen appears. Verify that PNC Active is “up” and that the Service State is “in.”
2. A Span LED, on the front of the DS1 Converter circuit pack, must be on for each active facility administered. For example, if Facility A and Facility B are administered, then the top 2 Span LEDs on the circuit pack must be on (yellow). The yellow LEDs are on only if no problems were encountered during the administration of hardware. Span LEDs associated with non-administered facilities (C and D, in this example) should be off.
3. Perform a test call, if desired.

Troubleshooting Upgrade Problems

B

This appendix provides information to correct some problems when upgrading a system. The information in this appendix is a compilation of the most commonly reported troubles received by Tier 4 Support at Lucent Technologies.

This appendix may be updated with new information at each product/document release. If you have troubleshooting or error recovery information that you feel would be valuable to other technicians, please FAX your comments to us at 1-303-538-1741 (United States).

Problem Escalation

Before escalating a problem, try the troubleshooting procedures listed in this appendix. Also try the general troubleshooting procedures below.

1. Check the software compatibility on the Software Release Letter. Be sure the software that you are upgrading *from* is compatible with the software that you are upgrading *to*.
2. Check the Release 6 software tape for defects. Enter **test tape** <**cabinet**> <**carrier**> **long**. If the tape has errors, replace it.

   NOTE:
   Do not use the “test tape short” command. This test cannot find all of the bad sectors that may be present on the tape.

3. If upgrading from G3V4 and earlier systems to a Release 6r, check the vintage of the disk drive. The disk drive *must* be TN1657 Vintage 4 or later.
4. Always use the Software Release Letter that accompanies the software tape. If the letter is not available, use the appropriate chapter in this book.

Troubleshooting Release 6r Upgrades

No Translations After Upgrade

This problem usually means that the **save translation** command, performed during the upgrade, was not successful. To recover:

1. Install the backup tape into the tape drive. This tape must contain the original translations before the upgraded started.
2. Verify that the software is Release 6 and that shadowing is up.
3. Copy the translations from the backup tape to the disk. Enter **copy translation disk both** and press Enter. This copies the translations from tape to disk and takes about 30 minutes.
4. Enter **reset system 3**.
5. When the reboot is finished, the system should contain all of the translations from the backup tape.

One Side Upgrades, the Other Side Does Not (No Shadowing); Active Side Has Correct R6 Load

This problem indicates that the software version on the standby side is incorrect.

1. Perform a “hot-swap” of the disk drives (move the standby disk to the active side and vice versa).
2. Insert the Release 6 software tape into the active tape drive.
3. Enter **list configure software** and press Enter to verify the tape contains the required Release 6 software.
4. If the software version on the disk is incorrect, enter **restore disk full active** and press Enter. This copies the entire backup tape to disk and takes about 30 minutes. Do not use the “restore disk install” command.
5. Perform a “hot-swap” of the disk drives (move the standby disk to the active side and vice versa).
6. Perform a power-down reset on the standby side *only*. Disconnect the power cords (first from the left side and then the right side) from the power supplies on both sides of the standby SPE.

Restore Disk Install or Restore Disk Full Fails

This problem assumes that an MSS error was encountered, a restore disk full failed, or a restore disk install failed.

1. This usually indicates that a bad tape was used. To verify:
   a. Clean the tape drive with the tape drive cleaning kit and insert the suspect tape into the tape drive.
   b. Enter **test tape** <**cabinet**> <**carrier**> **long**.

      NOTE:
      Do not run the “test tape short” command. The short test cannot find all of the bad sectors that may be present on the tape.

   c. If the tape has errors, replace it.
2. Insert a good Release 6 software tape into the tape drive.
3. Test the tape before starting the upgrade. Enter **test tape** <**cabinet**> <**carrier**> **long**.

   NOTE:
   Do not run the “test tape short command.” The short test cannot find all of the bad sectors that may be present on the tape.

Message Waiting Lamps On (After Removing an EPN)

All affected port-related translations were not unadministered before removing an EPN cabinet.

1. Enter **clear amw all** <**extension**>. Press Enter. This clears the message waiting lamp for the specified extension.
2. Repeat the command for each extension with a lit message waiting lamp.

Glossary and Abbreviations

Numerics

800 service
A service in the United States that allows incoming calls from certain areas to an assigned number for a flat-rate charge based on usage.

A

AA
Archangel. See angel.

AAC
ATM access concentrator

AAR
See Automatic Alternate Routing (AAR).

abandoned call
An incoming call in which the caller hangs up before the call is answered.

Abbreviated Dialing (AD)
A feature that allows callers to place calls by dialing just one or two digits.

AC
1. Alternating current.
2. See Administered Connection (AC).

AAR
Automatic Alternate Routing

ACA
See Automatic Circuit Assurance (ACA).

ACB
See Automatic Callback (ACB).

ACD
See Automatic Call Distribution (ACD).

ACD agent
See agent.

ACU
See Automatic calling unit (ACU)

ACW
See after-call work (ACW) mode.

access code
A 1-, 2-, or 3-digit dial code used to activate or cancel a feature, or access an outgoing trunk.

access endpoint
Either a nonsignaling channel on a DS1 interface or a nonsignaling port on an analog tie-trunk circuit pack that is assigned a unique extension.

access tie trunk
A trunk that connects a main communications system with a tandem communications system in an electronic tandem network (ETN). An access tie trunk can also be used to connect a system or tandem to a serving office or service node. Also called access trunk.

access trunk
See access tie trunk.

ACCUNET
A trademarked name for a family of digital services offered by AT&T in the United States.

ACD
See Automatic Call Distribution (ACD). ACD also refers to a work state in which an agent is on an ACD call.

ACD work mode
See work mode.

active-notification association
A link that is initiated by an adjunct, allowing it to receive event reports for a specific switch entity, such as an outgoing call.

active-notification call
A call for which event reports are sent over an active-notification association (communication channel) to the adjunct. Sometimes referred to as a monitored call.

active notification domain
VDN or ACD split extension for which event notification has been requested.

ACU
See Automatic calling unit (ACU).

AD
See Abbreviated Dialing (AD).

ADAP
AUDIX Data Acquisition Package

ADC
See analog-to-digital converter (ADC).

adjunct
A processor that does one or more tasks for another processor and that is optional in the configuration of the other processor. See also application.

adjunct-control association
A relationship initiated by an application via *Third Party Make Call*, the *Third Party Take Control,* or *Domain (Station) Control* capabilities to set up calls and control calls already in progress.

adjunct-controlled call
Call that can be controlled using an adjunct-control association. Call must have been originated via *Third Party Make Call* or *Domain (Station) Control* capabilities or must have been taken control of via *Third Party Take Control* or *Domain (Station) Control* capabilities.

adjunct-controlled split
An ACD split that is administered to be under adjunct control. Agents logged into such splits must do all telephony work, ACD login/ logout, and changes of work mode through the adjunct (except for auto-available adjunct-controlled splits, whose agents may not log in/out or change work mode).

adjunct-monitored call
An adjunct-controlled call, active-notification call, or call that provides event reporting over a domain-control association.

Adjunct-Switch Application Interface (ASAI)
A recommendation for interfacing adjuncts and communications systems, based on the CCITT Q.932 specification for layer 3.

ADM
Asynchronous data module

administer
To access and change parameters associated with the services or features of a system.

Administered Connection (AC)
A feature that allows the switch to automatically establish and maintain end-to-end connections between access endpoints (trunks) and/or data endpoints (data modules).

administration group
See capability group.

administration terminal
A terminal that is used to administer and maintain a system. See also terminal.

Administration Without Hardware (AWOH)
A feature that allows administration of ports without associated terminals or other hardware.

ADU
See asynchronous data unit (ADU).

AE
See access endpoint.

after-call work (ACW) mode
A mode in which agents are unavailable to receive ACD calls. Agents enter the ACW mode to perform ACD-related activities such as filling out a form after an ACD call.

AG
ASAI Gateway

agent
A person who receives calls directed to a split. A member of an ACD hunt group or ACD split. Also called an ACD agent.

agent report
A report that provides historical traffic information for internally measured agents.

AIM
Asynchronous interface module

AIOD
Automatic Identification of Outward Dialing

ALBO
Automatic Line Build Out

All trunks busy (ATB)
The state in which no trunks are available for call handling.

ALM-ACK
Alarm acknowledge

American Standard Code for Information Interchange
See ASCII (American Standard Code for Information Interchange).

AMW
Automatic Message Waiting

AN
Analog

analog
The representation of information by continuously variable physical quantities such as amplitude, frequency, and phase. See also digital.

analog data
Data that is transmitted over a digital facility in analog (PCM) form. The data must pass through a modem either at both ends or at a modem pool at the distant end.

analog telephone
A telephone that receives acoustic voice signals and sends analog electrical signals along the telephone line. Analog telephones are usually served by a single wire pair (tip and ring). The model-2500 telephone set is a typical example of an analog telephone.

analog-to-digital converter (ADC)
A device that converts an analog signal to digital form. See also digital-to-analog converter (DAC).

angel
A microprocessor located on each port card in a processor port network (PPN). The angel uses the control-channel message set (CCMS) to manage communications between the port card and the archangel on the controlling switch-processing element (SPE). The angel also monitors the status of other microprocessors on a port card and maintains error counters and thresholds.

ANI
See Automatic Number Identification (ANI).

ANSI
American National Standards Institute**.** A United States professional/technical association supporting a variety of standards.

answerback code
A number used to respond to a page from a code-calling or loudspeaker-paging system, or to retrieve a parked call.

AOL
Attendant-offered load

AP
Applications processor

APLT
Advanced Private-Line Termination

appearance
A software process that is associated with an extension and whose purpose is to supervise a call. An extension can have multiple appearances. Also called call appearance, line appearance, and occurrence. See also call appearance.

application
An adjunct that requests and receives ASAI services or capabilities. One or more applications can reside on a single adjunct. However, the switch cannot distinguish among several applications residing on the same adjunct and treats the adjunct, and all resident applications, as a single application. The terms application and adjunct are used interchangeably throughout this document.

applications processor
A micro-computer based, program controlled computer providing application services for the DEFINITY switch. The processor is used with several user-controlled applications such as traffic analysis and electronic documentation.

application service element
See capability group.

architecture
The organizational structure of a system, including hardware and software.

ARS
See Automatic Route Selection (ARS).

ASAI
See Adjunct-Switch Application Interface (ASAI)

ASCII (American Standard Code for Information Interchange)
The standard code for representing characters in digital form. Each character is represented by an 8-bit code (including parity bit).

association
A communication channel between adjunct and switch for messaging purposes. An active association is one that applies to an existing call on the switch or to an extension on the call.

asynchronous data transmission
A method of transmitting data in which each character is preceded by a start bit and followed by a stop bit, thus permitting data characters to be transmitted at irregular intervals. This type transmission is advantageous when transmission is not regular (characters typed at a keyboard). Also called asynchronous transmission. See also synchronous data transmission.

asynchronous data unit (ADU)
A device that allows direct connection between RS-232C equipment and a digital switch.

asynchronous Transfer Mode (ATM)
A packet-like switching technology in which data is transmitted in fixed-size (53-byte) cells. ATM provides high-speed access for data communication in LAN, campus, and WAN environments.

ATB
See All trunks busy (ATB).

ATD
See Attention dial (ATD).

attendant
A person at a console who provides personalized service for incoming callers and voice-services users by performing switching and signaling operations. See also attendant console.

ATM
See asynchronous Transfer Mode (ATM).

attendant console
The workstation used by an attendant. The attendant console allows the attendant to originate a call, answer an incoming call, transfer a call to another extension or trunk, put a call on hold, and remove a call from hold. Attendants using the console can also manage and monitor some system operations. Also called console. See also attendant.

Attention dial (ATD)
A command in the Hayes modem command set for asynchronous modems.

Audio Information Exchange (AUDIX)
A fully integrated voice-mail system. Can be used with a variety of communications systems to provide call-history data, such as subscriber identification and reason for redirection.

AUDIX
See Audio Information Exchange (AUDIX).

auto-in trunk group
Trunk group for which the CO processes all of the digits for an incoming call. When a CO seizes a trunk from an auto-in trunk group, the switch automatically connects the trunk to the destination — typically an ACD split where, if no agents are available, the call goes into a queue in which callers are answered in the order in which they arrive.

Auto-In Work mode
One of four agent work modes: the mode in which an agent is ready to process another call as soon as the current call is completed.

Automatic Alternate Routing (AAR)
A feature that routes calls to other than the first-choice route when facilities are unavailable.***

Automatic Callback (ACB)
A feature that enables internal callers, upon reaching a busy extension, to have the system automatically connect and ring both parties when the called party becomes available.

Automatic Call Distribution (ACD)
A feature that answers calls, and then, depending on administered instructions, delivers messages appropriate for the caller and routes the call to an agent when one becomes available.

Automatic Call Distribution (ACD) split
A method of routing calls of a similar type among agents in a call center. Also, a group of extensions that are staffed by agents trained to handle a certain type of incoming call.

Automatic calling unit (ACU)
A device that places a telephone call.

Automatic Circuit Assurance (ACA)
A feature that tracks calls of unusual duration to facilitate troubleshooting. A high number of very short calls or a low number of very long calls may signify a faulty trunk.

Automatic Number Identification (ANI)
Representation of the calling number, for display or for further use to access information about the caller. Available with Signaling System 7.

automatic restoration
A service that restores disrupted connections between access endpoints (nonsignaling trunks) and data endpoints (devices that connect the switch to data terminal and/or communications

equipment). Restoration is done within seconds of a service disruption so that critical data applications can remain operational.

Automatic Route Selection (ARS)
A feature that allows the system to automatically choose the least-cost way to send a toll call.

automatic trunk
A trunk that does not require addressing information because the destination is predetermined. A request for service on the trunk, called a seizure, is sufficient to route the call. The normal destination of an automatic trunk is the communications-system attendant group. Also called automatic incoming trunk and automatic tie trunk.

AUX
Auxiliary

auxiliary equipment
Equipment used for optional system features, such as Loudspeaker Paging and Music-on-Hold.

auxiliary trunk
A trunk used to connect auxiliary equipment, such as radio-paging equipment, to a communications system.

Aux-Work mode
A work mode in which agents are unavailable to receive ACD calls. Agents enter Aux-Work mode when involved in non-ACD activities such as taking a break, going to lunch, or placing an outgoing call.

AVD
Alternate voice/data

AWOH
See Administration Without Hardware (AWOH).

AWG
American Wire Gauge

AWT
Average work time

B

B8ZS
Bipolar Eight Zero Substitution.

bandwidth
The difference, expressed in hertz, between the defined highest and lowest frequencies in a range.

barrier code
A security code used with the Remote Access feature to prevent unauthorized access to the system.

baud
A unit of transmission rate equal to the number of signal events per second. See also bit rate and bits per second (bps).

BCC
See Bearer capability class (BCC).

BCMS
Basic Call Management System

BCT
See business communications terminal (BCT).

Bearer capability class (BCC)
Code that identifies the type of a call (for example, voice and different types of data). Determination of BCC is based on the caller's characteristics for non-ISDN endpoints and on the Bearer Capability and Low-Layer Compatibility Information Elements of an ISDN endpoint. Current BCCs are 0 (voice-grade data and voice), 1 (DMI mode 1, 56 kbps data transmission), 2 (DMI mode 2, synchronous/asynchronous data transmission up to 19.2 kbps) 3 (DMI mode 3, 64 kbps circuit/packet data transmission), 4 (DMI mode 0, 64 kbps synchronous data), 5 (temporary signaling connection, and 6 (wideband call, 128–1984 kbps synchronous data).

BER
Bit error rate

BHCC
Busy-hour call completions

bit (binary digit)
One unit of information in binary notation, having two possible values: 0 or 1.

bits per second (bps)
The number of binary units of information that are transmitted or received per second. See also baud and bit rate.

bit rate
The speed at which bits are transmitted, usually expressed in bits per second. Also called data rate. See also baud and bits per second (bps).

BLF
Busy Lamp Field

BN
Billing number

BOS
Bit-oriented signaling

BPN
Billed-party number

bps
See bits per second (bps).

bridge (bridging)
The appearance of a voice terminal's extension at one or more other voice terminals.

BRI
The ISDN Basic Rate Interface specification.

bridged appearance
A call appearance on a voice terminal that matches a call appearance on another voice terminal for the duration of a call.

BTU
British Thermal Unit

buffer
1. In hardware, a circuit or component that isolates one electrical circuit from another. Typically, a buffer holds data from one circuit or process until another circuit or process is ready to accept the data.
2. In software, an area of memory that is used for temporary storage.

bus
A multiconductor electrical path used to transfer information over a common connection from any of several sources to any of several destinations.

business communications terminal (BCT)
A digital data terminal used for business applications. A BCT can function via a data module as a special-purpose terminal for services provided by a processor or as a terminal for data entry and retrieval.

BX.25
A version of the CCITT X.25 protocol for data communications. BX.25 adds a fourth level to the standard X.25 interface. This uppermost level combines levels 4, 5, and 6 of the ISO reference model.

bypass tie trunks
A 1-way, outgoing tie trunk from a tandem switch to a main switch in an ETN. Bypass tie trunks, provided in limited quantities, are used as a last-choice route when all trunks to another tandem switch are busy. Bypass tie trunks are used only if all applicable intertandem trunks are busy.

byte
A sequence of (usually eight) bits processed together.

C

CACR
Cancellation of Authorization Code Request

cabinet
Housing for racks, shelves, or carriers that hold electronic equipment.

cable
Physical connection between two pieces of equipment (for example, data terminal and modem) or between a piece of equipment and a termination field.

cable connector
A jack (female) or plug (male) on the end of a cable. A cable connector connects wires on a cable to specific leads on telephone or data equipment.

CAG
Coverage answer group

call appearance
1. For the attendant console, six buttons, labeled a–f, used to originate, receive, and hold calls. Two lights next to the button show the status of the call appearance.
2. For the voice terminal, a button labeled with an extension and used to place outgoing calls,

receive incoming calls, or hold calls. Two lights next to the button show the status of the call appearance.

call-control capabilities
Capabilities (*Third Party Selective Hold, Third Party Reconnect, Third Party Merge*) that can be used in either of the Third Party Call Control ASE (cluster) subsets (Call Control and Domain Control).

Call Detail Recording (CDR)
A feature that uses software and hardware to record call data (same as CDRU).

Call Detail Recording utility (CDRU)
Software that collects, stores, optionally filters, and outputs call-detail records.

Call Management System (CMS)
An application, running on an adjunct processor, that collects information from an ACD unit. CMS enables customers to monitor and manage telemarketing centers by generating reports on the status of agents, splits, trunks, trunk groups, vectors, and VDNs, and enables customers to partially administer the ACD feature for a communications system.

call-reference value (CRV)
An identifier present in ISDN messages that associates a related sequence of messages. In ASAI, CRVs distinguish between associations.

call vector
A set of up to 15 vector commands to be performed for an incoming or internal call.

callback call
A call that automatically returns to a voice-terminal user who activated the Automatic Callback or Ringback Queuing feature.

call-waiting ringback tone
A low-pitched tone identical to ringback tone except that the tone decreases in the last 0.2 seconds (in the United States). Call-waiting ringback tone notifies the attendant that the Attendant Call Waiting feature is activate and that the called party is aware of the waiting call. Tones in international countries may sound different.

call work code
A number, up to 16 digits, entered by ACD agents to record the occurrence of customer-defined events (such as account codes, social security numbers, or phone numbers) on ACD calls.

CAMA
Centralized Automatic Message Accounting

carrier
An enclosed shelf containing vertical slots that hold circuit packs.

carried load
The amount of traffic served by traffic-sensitive facilities during a given interval.

CARR-POW
Carrier Port and Power Unit for AC Powered Systems

CAS
Centralized Attendant Service or Call Accounting System

CCS or hundred call seconds
A unit of call traffic. Call traffic for a facility is scanned every 100 seconds. If the facility is busy, it is assumed to have been busy for the entire scan interval. There are 3600 seconds per hour. The Roman numeral for 100 is the capital letter C. The abbreviation for call seconds is CS. Therefore,

100 call seconds is abbreviated CCS. If a facility is busy for an entire hour, then it is said to have been busy for 36 CCS. See also Erlang.

capability
A request or indication of an operation. For example, *Third Party Make Call* is a request for setting up a call; *event report* is an indication that an event has occurred.

capability group
Set of capabilities, determined by switch administration, that can be requested by an application. Capability groups denote association types. For example, *Call Control* is a type of association that allows certain functions (the ones in the capability group) to be performed over this type of association. Also referred to as administration groups or application service elements (ASEs).

CA-TSC
Call-Associated Temporary Signaling Connection

cause value
A value is returned in response to requests or in event reports when a denial or unexpected condition occurs. ASAI cause values fall into two coding standards: Coding Standard 0 includes any cause values that are part of AT&T and CCITT ISDN specifications; Coding standard 3 includes any other ASAI cause values. This document uses a notation for cause value where the coding standard for the cause is given first, then a slash, then the cause value. Example: CS0/100 is coding standard 0, cause value 100.

CBC
Call-by-call or coupled bonding conductor

CC
Country code

CCIS
Common-Channel Interoffice Signaling

CCITT
CCITT (Comitte Consultatif International Telephonique et Telegraphique), now called *International Telecommunications Union* (ITU). See International Telecommunications Union (ITU).

CCMS
Control-Channel Message Set

CCS
See CCS or hundred call seconds.

CCSA
Common-Control Switching Arrangement

CDM
Channel-division multiplexing

CDOS
Customer-dialed and operator serviced

CDR
See Call Detail Recording (CDR).

CDRP
Call Detail Record Poller

CDRR
Call Detail Recording and Reporting

CDRU
See Call Detail Recording utility (CDRU).

CEM
Channel-expansion multiplexing

center-stage switch (CSS)
The central interface between the processor port network and expansion port networks in a CSS-connected system.

central office (CO)
The location housing telephone switching equipment that provides local telephone service and access to toll facilities for long-distance calling.

central office (CO) codes
The first three digits of a 7-digit public-network telephone number in the United States.

central office (CO) trunk
A telecommunications channel that provides access from the system to the public network through the local CO.

CEPT1
European Conference of Postal and Telecommunications Rate 1

channel
1. A circuit-switched call.
2. A communications path for transmitting voice and data.
3. In wideband, all of the time slots (contiguous or noncontiguous) necessary to support a call. Example: an H0-channel uses six 64-kbps time slots.
4. A DS0 on a T1 or E1 facility not specifically associated with a logical circuit-switched call; analogous to a single trunk.

channel negotiation
The process by which the channel offered in the Channel Identification Information Element (CIIE) in the SETUP message is negotiated to be another channel acceptable to the switch that receives the SETUP message and ultimately to the switch that sent the SETUP. Negotiation is attempted only if the CIIE is encoded as *Preferred*. Channel negotiation is not attempted for wideband calls.

CI
Clock input

circuit
1. An arrangement of electrical elements through which electric current flows.
2. A channel or transmission path between two or more points.

circuit pack
A card on which electrical circuits are printed, and IC chips and electrical components are installed. A circuit pack is installed in a switch carrier.

CISPR
International Special Committee on Radio Interference

Class of Restriction (COR)
A feature that allows up to 64 classes of call-origination and call-termination restrictions for voice terminals, voice-terminal groups, data modules, and trunk groups. See also Class of Service (COS).

Class of Service (COS)
A feature that uses a number to specify if voice-terminal users can activate the Automatic Callback, Call Forwarding All Calls, Data Privacy, or Priority Calling features. See also Class of Restriction (COR).

cm
Centimeter

CM
Connection Manager

CMC
Compact Modular Cabinet

CMDR
Centralized Message Detail Recording

CMS
Call Management System

CO
See central office (CO).

common-control switching arrangement (CCSA)
A private telecommunications network using dedicated trunks and a shared switching center for interconnecting company locations.

communications system
The software-controlled processor complex that interprets dialing pulses, tones, and keyboard characters and makes the proper connections both within the system and external to the system. The communications system itself consists of a digital computer, software, storage device, and carriers with special hardware to perform the connections. A communications system provides voice and data communications services, including access to public and private networks, for telephones and data terminals on a customer's premises. See also switch.

confirmation tone
A tone confirming that feature activation, deactivation, or cancellation has been accepted.

connectivity
The connection of disparate devices within a single system.

console
See attendant console.

contiguous
Adjacent DS0s within one T1 or E1 facility or adjacent TDM or fiber time slots. The first and last TDM bus, DS0, or fiber time slots are not considered contiguous (no wraparound). For an E1 facility with a D-channel, DS0s 15 and 17 are considered contiguous.

control cabinet
See control carrier.

control carrier
A carrier in a multi-carrier cabinet that contains the SPE circuit packs and, unlike an R5r control carrier, port circuit packs. Also called control cabinet in a single-carrier cabinet. See also switch-processing element (SPE).

controlled station
A station that is monitored and controlled via a domain-control association.

COR
See Class of Restriction (COR).

COS
See Class of Service (COS).

coverage answer group
A group of up to eight voice terminals that ring simultaneously when a call is redirected to it by Call Coverage. Any one of the group can answer the call.

coverage call
A call that is automatically redirected from the called party's extension to an alternate answering position when certain coverage criteria are met.

coverage path
The order in which calls are redirected to alternate answering positions.

coverage point
An extension or attendant group, VDN, or ACD split designated as an alternate answering position in a coverage path.

covering user
A person at a coverage point who answers a redirected call.

CP
Circuit pack

CPE
Customer-premises equipment

CPN
Called-party number

CPN/BN
Calling-party number/billing number

CPTR
Call-progress-tone receiver

CRC
Cyclical Redundancy Checking

critical-reliability system
A system that has the following duplicated items: control carriers, tone clocks, EI circuit packs, and cabling between port networks and center-stage switch in a CSS-connected system. See also duplicated common control, and duplication.

CSA
Canadian Safety Association or Customer Software Administrator

CSCC
Compact single-carrier cabinet

CSCN
Center-stage control network

CSD
Customer-service document

CSM
Centralized System Management

CSS
See center-stage switch (CSS).

CSSO
Customer Services Support Organization

CSU
Channel service unit

CTS
Clear to Send

CWC
See call work code.

D

DAC
1. Dial access code or Direct Agent Calling
2. See digital-to-analog converter (DAC).

data channel
A communications path between two points used to transmit digital signals.

data-communications equipment (DCE)
The equipment (usually a modem, data module, or packet assembler/disassembler) on the network side of a communications link that makes the binary serial data from the source or transmitter compatible with the communications channel.

data link
The configuration of physical facilities enabling end terminals to communicate directly with each other.

data module
An interconnection device between a BRI or DCP interface of the switch and data terminal equipment or data communications equipment.

data path
The end-to-end connection used for a data communications link. A data path is the combination of all elements of an interprocessor communication in a DCS.

data port
A point of access to a computer that uses trunks or lines for transmitting or receiving data.

data rate
See bit rate.

data service unit (DSU)
A device that transmits digital data on transmission facilities.

data terminal
An input/output (I/O) device that has either switched or direct access to a host computer or to a processor interface.

data terminal equipment (DTE)
Equipment consisting of the endpoints in a connection over a data circuit. In a connection between a data terminal and host, the terminal, the host, and their associated modems or data modules make up the DTE.

dB
Decibel

dBA
Decibels in reference to amperes.

dBrnC
Decibels above reference noise with C filter.

DC
Direct current

DCE
Data-communications equipment

D-channel backup
Type of backup used with Non-Facility Associated Signaling (NFAS). A primary D-channel provides signaling for an NFAS D-channel group (two or more PRI facilities). A second D-channel, on a separate PRI facility of the NFAS D-channel group, is designated as backup for the D-channel. Failure of the primary D-channel causes automatic transfer of call-control signaling to the backup D-channel. The backup becomes the primary D-channel. When the failed channel returns to service, it becomes the backup D-channel.

DCO
Digital central office

DCP
Digital Communications Protocol

DCS
Distributed Communications System

DDC
Direct Department Calling

DDD
Direct Distance Dialing

delay-dial trunk
A trunk that allows dialing directly into a communications system (digits are received as they are dialed).

denying a request
Sending a negative acknowledgement (NAK), done by sending an FIE with a *return error* component (and a cause value). It should not be confused with the denial event report that applies to calls.

designated voice terminal
The specific voice terminal to which calls, originally directed to a certain extension, are redirected. Commonly used to mean the forwarded-to terminal when Call Forwarding All Calls is active.

dial-repeating trunks
A PBX tie trunk that is capable of handling PBX station-signaling information without attendant assistance.

dial-repeating tie trunk
A tie trunk that transmits called-party addressing information between two communications systems.

DID
Direct Inward Dialing

digit conversion
A process used to convert specific dialed numbers into other dialed numbers.

digital
The representation of information by discrete steps. See also analog.

digital communications protocol (DCP)

- A proprietary protocol used to transmit both digitized voice and digitized data over the same communications link. A DCP link is made up of two 64-kbps information (I-) channels and one 8-kbps signaling (S-) channel. Digital Communications Protocol. The DCP protocol supports 2 information-bearing channels, and thus two telephones/data modules. The I1 channel is the DCP channel assigned on the first page of the 8411 station form. The I2 channel is the DCP channel assigned on the analog adjunct page of the 8411 station form or on the data module page.
- Digital Communications Protocol. The DCP protocol supports 2 information-bearing channels, and thus two telephones/data modules. The I1 channel is the DCP channel assigned on the first page of the 8411 station form. The I2 channel is the DCP channel assigned on the analog adjunct page of the 8411 station form or on the data module page.

digital data endpoints
In DEFINITY ECS, devices such as the 510D terminal or the 515-type business communications terminal (BCT).

digital multiplexed interface (DMI)
An interface that provides connectivity between a communications system and a host computer or between two communications systems using DS1 24th-channel signaling. DMI provides 23 64-kbps data channels and 1 common-signaling channel over a twisted-pair connection. DMI is offered through two capabilities: bit-oriented signaling (DMI-BOS) and message-oriented signaling (DMI-MOS).

digital signal level 0 (DS0)
A single 64-kbps voice channel. A DS0 is a single 64-kbps channel in a T1 or E1 facility and consists of eight bits in a T1 or E1 frame every 125 microseconds.

digital signal level 1 (DS1)
A single 1.544-Mbps (United States) or 2.048-Mbps (outside the United States) digital signal carried on a T1 transmission facility. A DS1 converter complex consists of a pair, one at each end, of DS1 converter circuit packs and the associated T1/E1 facilities.

digital terminal data module (DTDM)
An integrated or adjunct data module that shares with a digital telephone the same physical port for connection to a communications system. The function of a DTDM is similar to that of a PDM and MPDM in that it converts RS-232C signals to DCP signals.

digital-to-analog converter (DAC)
A device that converts data in digital form to the corresponding analog signals. See also analog-to-digital converter (ADC).

digital transmission
A mode of transmission in which information to be transmitted is first converted to digital form and then transmitted as a serial stream of pulses.

digital trunk
A circuit that carries digital voice and/or digital data in a telecommunications channel.

DIOD
Direct Inward and Outward Dialing

direct agent
A feature, accessed only via ASAI, that allows a call to be placed in a split queue but routed only to a specific agent in that split. The call receives normal ACD call treatment (for example, announcements) and is measured as an ACD call while ensuring that a particular agent answers.

Direct Extension Selection (DXS)
A feature on an attendant console that allows an attendant direct access to voice terminals by pressing a group-select button and a DXS button.

Direct Inward Dialing (DID)
A feature that allows an incoming call from the public network (not FX or WATS) to reach a specific telephone without attendant assistance.

Direct Inward Dialing (DID) trunk
An incoming trunk used for dialing directly from the public network into a communications system without help from the attendant.

disk drive
An electromechanical device that stores data on and retrieves data from one or more disks.

distributed communications system (DCS)
A network configuration linking two or more communications systems in such a way that selected features appear to operate as if the network were one system.

DIVA
Data In/Voice Answer

DLC
Data line circuit

DLDM
Data-line data module

DMI
Digital-multiplexed interface

DND
Do not disturb

DNIS
Dialed-Number Identification Service

DOD
Direct Outward Dialing

domain
VDNs, ACD splits, and stations. The VDN domain is used for active-notification associations. The ACD-split domain is for active-notification associations and domain-control associations. The station domain is used for the domain-control associations.

domain-control association
A *Third Party Domain Control Request* capability initiates a unique CRV/link number combination, which is referred to as a domain-control association.

domain-controlled split
A split for which *Third Party Domain Control* request has been accepted. A domain-controlled split provides an event report for logout.

domain-controlled station
A station for which a *Third_Party_Domain_Control* request has been accepted. A domain-controlled station provides event reports for calls that are alerting, connected, or held at the station.

domain-controlled station on a call
A station that is active on a call, and which provides event reports over one or two domain-control associations.

DOSS
Delivery Operations Support System

DOT
Duplication Option Terminal

DPM
Dial Plan Manager

DPR
Dual-port RAM

DS1
Digital Signal Level 1

DS1C
Digital Signal Level-1 protocol C

DS1 CONV
Digital Signal Level-1 converter

DSI
Digital signal interface

DSU
Data service unit

DTDM
Digital-terminal data module

DTE
Data-terminal equipment

DTGS
Direct Trunk Group Select

DTMF
Dual-tone multifrequency

DTS
Disk-tape system

duplicated common control
Two processors ensuring continuous operation of a communications system. While one processor is online, the other functions as a backup. The backup processor goes online periodically or when a problem occurs.

duplication
The use of redundant components to improve availability. When a duplicated subsystem fails, its backup redundant system automatically takes over.

duplication option
A system option that duplicates the following: control carrier containing the SPE, EI circuit packs in carriers, fiber-optic cabling between port networks, and center-stage switch in a CSS-connected system.

DWBS
DEFINITY Wireless Business System

DXS
Direct extension selection

E

E1
A digital transmission standard that carries traffic at 2.048 Mbps. The E1 facility is divided into 32 channels (DS0s) of 64 kbps information. Channel 0 is reserved for framing and synchronization information. A D-channel occupies channel 16.

E & M
Ear and mouth (receive and transmit)

EA
Expansion archangel

EAL
Expansion archangel link

ear and mouth (E & M) signaling
Trunk supervisory signaling, used between two communications systems, whereby signaling information is transferred through 2-state voltage conditions (on the E and M leads) for analog applications and through a single bit for digital applications.

EBCDIC
Extended Binary-Coded Decimal Interexchange Code

ECC
Error Correct Code

ECMA
European Computer Manufacturers Association

EFP
Electronic power feed

EI
Expansion interface

EIA
Electronic Industries Association

EIA-232
A physical interface specified by the EIA. EIA-232 transmits and receives asynchronous data at speeds of up to 19.2 kbps over cable distances of up to 50 feet. EIA-232 replaces RS-232 protocol in some DEFINITY applications.

electronic tandem network (ETN)
A tandem tie-trunk network that has automatic call-routing capabilities based on the number dialed and the most preferred route available. Each switch in the network is assigned a unique private network office code (RNX), and each voice terminal is assigned a unique extension.

Electronics Industries Association (EIA)
A trade association of the electronics industry that establishes electrical and functional standards.

emergency transfer
If a major system failure occurs, automatic transfer is initiated to a group of telephones capable of making outgoing calls. The system operates in this mode until the failure is repaired and the system automatically returns to normal operation. Also called power-failure transfer.

EMI
Electromagnetic interference

end-to-end signaling
The transmission of touch-tone signals generated by dialing from a voice terminal to remote computer equipment. These digits are sent over the trunk as DTMF digits whether the trunk signaling type is marked as tone or rotary and whether the originating station is tone or rotary. Example: a call to a voice-mail machine or automated-attendant service. A connection is first established over an outgoing trunk. Then additional digits are dialed to transmit information to be processed by the computer equipment.

enhanced private-switched communications service (EPSCS)
An analog private telecommunications network based on the No. 5 crossbar and 1A ESS that provides advanced voice and data telecommunications services to companies with many locations.

EPN
Expansion-port network

EPROM
Erasable programmable read-only memory

EPSCS
Enhanced Private Switched Communications Services

ERL
Echo return loss

Erlang
A unit of traffic intensity, or load, used to express the amount of traffic needed to keep one facility busy for one hour. One Erlang is equal to 36 CCS. See also CCS or hundred call seconds.

ESF
Extended superframe format

ESPA
European Standard Paging Access

ETA
Extended Trunk Access; also Enhanced Terminal Administration

ETN
Electronic tandem network

ETSI
European Telecommunications Standards Institute

expansion archangel (EAA)
A network-control microprocessor located on an expansion interface (EI) port circuit pack in an expansion port network. The EA provides an interface between the EPN and its controlling switch-processing element.

expansion-archangel link (EAL)
A link-access function on the D-channel (LAPD) logical link that exists between a switch-processing element and an expansion archangel (EA). The EAL carries control messages from the SPE to the EA and to port circuit packs in an expansion port network.

expansion control cabinet
See expansion control carrier.

expansion control carrier
A carrier in a multicarrier cabinet that contains extra port circuit packs and a maintenance interface. Also called expansion control cabinet in a single-carrier cabinet.

expansion interface (EI)
A port circuit pack in a port network that provides the interface between a PN's TDM bus/ packet bus and a fiber-optic link. The EI carries circuit-switched data, packet-switched data, network control, timing control, and DS1 control. In addition, an EI in an expansion port network communicates with the master maintenance circuit pack to provide the EPN's environmental and alarm status to the switch-processing element.

expansion port network (EPN)
A port network (PN) that is connected to the TDM bus and packet bus of a processor port network (PPN). Control is achieved by indirect connection of the EPN to the PPN via a port-network link (PNL). See also port network (PN).

extension-in
Extension-In (ExtIn) is the work state agents go into when they answer (receive) a non-ACD call. If the agent is in Manual-In or Auto-In and receives an extension-in call, it is recorded by CMS as an AUX-In call.

extension-out
The work state that agents go into when they place (originate) a non-ACD call.

external measurements
Those ACD measurements that are made by the External CMS adjunct.

extension
A 1- to 5-digit number by which calls are routed through a communications system or, with a Uniform Dial Plan (UDP) or main-satellite dialing plan, through a private network.

external call
A connection between a communications system user and a party on the public network or on another communications system in a private network.

F

FAC
Feature Access Code

facility
A telecommunications transmission pathway and associated equipment.

facility-associated signaling (FAS)
Signaling for which a D-channel carries signaling only for those channels on the same physical interface.

FAS
Facility-associated signaling

FAT
Facility access trunk

FAX
Facsimile

FCC
Federal Communications Commission

FEAC
Forced Entry of Account Codes

feature
A specifically defined function or service provided by the system.

feature button
A labeled button on a telephone or attendant console used to access a specific feature.

FEP
Front-end processor

FIC
Facility interface codes

fiber optics
A technology using materials that transmit ultrawideband electromagnetic light-frequency ranges for high-capacity carrier systems.

fixed
A trunk allocation term. In the fixed allocation scheme, the time slots necessary to support a wideband call are contiguous, and the first time slot is constrained to certain starting points.

flexible
A trunk allocation term. In the flexible allocation scheme, the time slots of a wideband call can occupy noncontiguous positions within a single T1 or E1 facility.

floating
A trunk allocation term. In the floating allocation scheme, the time slots of a wideband call are contiguous, but the position of the first time slot is not fixed.

FNPA
Foreign Numbering-Plan Area

foreign-exchange (FX)
A CO other than the one providing local access to the public telephone network.

foreign-exchange trunk
A telecommunications channel that directly connects the system to a CO other than its local CO.

foreign numbering-plan area code (FNPAC)
An area code other than the local area code, that must be dialed to call outside the local geographical area.

FRL
Facilities Restriction Level

FX
Foreign exchange

G

G3-MA
Generic 3 Management Applications

G3-MT
Generic 3 Management Terminal

G3r
Generic 3, RISC (Reduced Instruction Set Computer)

generalized route selection (GRS)
An enhancement to Automatic Alternate Routing/Automatic Route Selection (AAR/ARS) that performs routing based on call attributes, such as Bearer Capability Classes (BCCs), in addition to the address and facilities restriction level (FRL), thus facilitating a Uniform Dial Plan (UDP) that is independent of the type of call being placed.

glare
The simultaneous seizure of a 2-way trunk by two communications systems, resulting in a standoff.

GM
Group manager

GPTR
General-purpose tone receiver

grade of service
The number of call attempts that fail to receive service immediately. Grade of service is also expressed as the quantity of all calls that are blocked or delayed.

ground-start trunk
A trunk on which, for outgoing calls, the system transmits a request for services to a distant switching system by grounding the trunk ring lead. To receive the digits of the called number, that system grounds the trunk tip lead. When the system detects this ground, the digits are sent.

GRS
Generalized Route Selection

H

H0
An ISDN information transfer rate for 384-kbps data defined by CCITT and ANSI standards.

H11
An ISDN information transfer rate for 1536-kbps data defined by CCITT and ANSI standards.

H12
An ISDN information transfer rate for 1920-kbps data defined by CCITT and ANSI standards.

handshaking logic
A format used to initiate a data connection between two data module devices.

hertz (Hz)
A unit of frequency equal to one cycle per second.

high-reliability system
A system having the following: two control carriers, duplicate expansion interface (EI) circuit packs in the PPN (in R5r with CSS), and duplicate switch node clock circuit packs in the switch node (SN) carriers. See also duplicated common control, duplication, duplication option, and critical-reliability system.

HNPA
See home numbering-plan area code (HNPA).

holding time
The total length of time in minutes and seconds that a facility is used during a call.

home numbering-plan area code (HNPA)
The local area code. The area code does not have to be dialed to call numbers within the local geographical area.

hop
Nondirect communication between two switch communications interfaces (SCI) where the SCI message passes automatically without intermediate processing through one or more intermediate SCIs.

host computer
A computer, connected to a network, that processes data from data-entry devices.

hunt group
A group of extensions that are assigned the Station Hunting feature so that a call to a busy extension reroutes to an idle extension in the group. See also ACD work mode.

Hz
See hertz (Hz).

I

I1
The first information channel of DCP.

I2
The second information channel of DCP.

I2 Interface
A proprietary interface used for the DEFINITY Wireless Business System for the radio-controller circuit packs. Each interface provides communication between the radio-controller circuit pack and up to two wireless fixed bases.

I3 Interface
A proprietary interface used for the DEFINITY Wireless Business System for the cell antenna units. Each wireless fixed base can communicate to up to four cell antenna units.

IAS
Inter-PBX Attendant Service

ICC
Intercabinet cable or intercarrier cable

ICD
Inbound Call Director

ICDOS
International Customer-Dialed Operator Service

ICHT
Incoming call-handling table

ICI
Incoming call identifier

ICM
Inbound Call Management

IDDD
International Direct Distance Dialing

IDF
Intermediate distribution frame

IE
Information element

immediate-start tie trunk
A trunk on which, after making a connection with a distant switching system for an outgoing call, the system waits a nominal 65 ms before sending the digits of the called number. This allows time for the distant system to prepare to receive digits. On an incoming call, the system has less than 65 ms to prepare to receive the digits.

IMT
Intermachine trunk

in
Inch

INADS
Initialization and Administration System

incoming gateway
A PBX that routes an incoming call on a trunk *not* administered for Supplementary Services Protocol B to a trunk *not* administered for Supplementary Services Protocol B.

information exchange
The exchange of data between users of two different systems, such as the switch and a host computer, over a LAN.

Information Systems Network (ISN)
A WAN and LAN with an open architecture combining host computers, minicomputers, word processors, storage devices, PCs, high-speed printers, and nonintelligent terminals into a single packet-switching system.

INS
ISDN Network Service

inside call
A call placed from one telephone to another within the local communications system.

Integrated Services Digital Network (ISDN)
A public or private network that provides end-to-end digital communications for all services to which users have access by a limited set of standard multipurpose user-network interfaces defined by the CCITT. Through internationally accepted standard interfaces, ISDN provides digital circuit-switched or packet-switched communications within the network and links to other ISDNs to provide national and international digital communications. See also Integrated Services Digital Network Basic Rate Interface (ISDN-BRI) and Integrated Services Digital Network Primary Rate Interface (ISDN-PRI).

Integrated Services Digital Network Basic Rate Interface (ISDN-BRI)
The interface between a communications system and terminal that includes two 64-kbps B-channels for transmitting voice or data and one 16-kbps D-channel for transmitting associated B-channel call control and out-of-band signaling information. ISDN-BRI also includes 48 kbps for transmitting framing and D-channel contention information, for a total interface speed of 192 kbps. ISDN-BRI serves ISDN terminals and digital terminals fitted with ISDN terminal adapters. See also Integrated Services Digital Network (ISDN) andIntegrated Services Digital Network Primary Rate Interface (ISDN-PRI).

Integrated Services Digital Network Primary Rate Interface (ISDN-PRI)
The interface between multiple communications systems that in North America includes 24 64-kbps channels, corresponding to the North American digital signal level-1 (DS1) standard rate of 1.544 Mbps. The most common arrangement of channels in ISDN-PRI is 23 64-kbps B-channels for transmitting voice and data and 1 64-kbps D-channel for transmitting associated B-channel call control and out-of-band signaling information. With nonfacility-associated signaling (NFAS), ISDN-PRI can include 24 B-channels and no D-channel. See alsoIntegrated Services Digital Network (ISDN) andIntegrated Services Digital Network Basic Rate Interface (ISDN-BRI).

intercept tone
An tone that indicates a dialing error or denial of the service requested.

interface
A common boundary between two systems or pieces of equipment.

internal call
A connection between two users within a system.

International Telecommunications Union (ITU)
Formerly known as International Telegraph and Telephone Consultative Committee (CCITT), ITU is an international organization that sets universal standards for data communications, including ISDN. ITU members are from telecommunications companies and organizations around the world. See alsoBX.25.

International Telegraph and Telephone Consultative Committee
See International Telecommunications Union (ITU).

interflow
The ability for calls to forward to other splits on the same PBX or a different PBX using the Call Forward All Calls feature.

intraflow
The ability for calls to redirect to other splits on the same PBX on a conditional or unconditional basis using call coverage busy, don’t answer, or all criteria.

internal measurements
BCMS measurements that are made by the system. ACD measurements that are made external to the system (via External CMS) are referred to as external measurements.

in-use lamp
A red light on a multiappearance voice terminal that lights to show which call appearance will be selected when the handset is lifted or which call appearance is active when a user is off-hook.

INWATS
Inward Wide Area Telephone Service

IO
Information outlet

ISDN
See Integrated Services Digital Network (ISDN).

ISDN Gateway (IG)
A feature allowing integration of the switch and a host-based telemarketing application via a link to a gateway adjunct. The gateway adjunct is a 3B-based product that notifies the host-based telemarketing application of call events.

ISDN trunk
A trunk administered for use with ISDN-PRI. Also called ISDN facility.

ISDN-PRI terminal adapter
An interface between endpoint applications and an ISDN PRI facility. ISDN-PRI terminal adapters are currently available from other vendors and are primarily designed for video conferencing applications. Accordingly, currently available terminal adapters adapt the two pairs of video codec data (V.35) and dialing (RS-366) ports to an ISDN PRI facility.

IS/DTT
Integrated Services/digital tie trunk

ISN
Information Systems Network

ISO
International Standards Organization

ISV
Independent software vendor

ITP
Installation test procedure

ITU
International Telecommunications Union

IXC
Interexchange carrier code

K

kHz
Kilohertz

kbps
Kilobits per second

kbyte
Kilobyte

kg
Kilogram

L

LAN
Local area network

LAP-D
Link Access Procedure on the D-channel

LAPD
Link Access Procedure data

LATA
Local access and transport area

lb
Pound

LBO
Line buildout

LDN
Listed directory number

LDS
Long-distance service

LEC
Local exchange carrier

LED
See light-emitting diode (LED).

light-emitting diode (LED)
A semiconductor device that produces light when voltage is applied. LEDs provide a visual indication of the operational status of hardware components, the results of maintenance tests, the alarm status of circuit packs, and the activation of telephone features.

lightwave transceiver
Hardware that provides an interface to fiber-optic cable from port circuit packs and DS1 converter circuit packs. Lightwave transceivers convert electrical signals to light signals and vice versa.

line
A transmission path between a communications system or CO switching system and a voice terminal or other terminal.

line appearance
See appearance.

line buildout
A selectable output attenuation is generally required of DTE equipment because T1 circuits require the last span to lose 15–22.5 dB.

line port
Hardware that provides the access point to a communications system for each circuit associated with a telephone or data terminal.

link
A transmitter-receiver channel that connects two systems.

link-access procedure on the D-channel (LAPD)
A link-layer protocol on the ISDN-BRI and ISDN-PRI data-link layer (level 2). LAPD provides data transfer between two devices, and error and flow control on multiple logical links. LAPD is used for signaling and low-speed packet data (X.25 and mode 3) on the signaling (D-) channel and for mode-3 data communications on a bearer (B-) channel.

LINL
Local indirect neighbor link

local area network (LAN)
A networking arrangement designed for a limited geographical area. Generally, a LAN is limited in range to a maximum of 6.2 miles and provides high-speed carrier service with low error rates. Common configurations include daisy chain, star (including circuit-switched), ring, and bus.

logical link
The communications path between a processor and a BRI terminal.

loop-start trunk
A trunk on which, after establishing a connection with a distant switching system for an outgoing call, the system waits for a signal on the loop formed by the trunk leads before sending the digits of the called number.

LSU
Local storage unit

LWC
Leave Word Calling

M

MAC
Medium access

MADU
Modular asynchronous data unit

main distribution frame (MDF)
A device that mounts to the wall inside the system equipment room. The MDF provides a connection point from outside telephone lines to the PBX switch and to the inside telephone stations.

main-satellite-tributary
A private network configuration that can either stand alone or access an ETN. A main switch provides interconnection, via tie trunks, with one or more subtending switches, called satellites; all attendant positions for the main/satellite configuration; and access to and from the public network. To a user outside the complex, a main/satellite configuration appears as one switch, with one listed directory number (LDN). A tributary switch is connected to the main switch via tie trunks, but has its own attendant positions and LDN.

maintenance
Activities involved in keeping a telecommunications system in proper working condition: the detection and isolation of software and hardware faults, and automatic and manual recovery from these faults.

management terminal
The terminal that is used by the system administrator to administer the switch. The terminal may also be used to access the BCMS feature.

major alarm
An indication of a failure that has caused critical degradation of service and requires immediate attention. Major alarms are automatically displayed on LEDs on the attendant console and maintenance or alarming circuit pack, logged to the alarm log, and reported to a remote maintenance facility, if applicable.

Manual-In work mode
One of four agent work modes: the mode in which an agent is ready to process another call manually. *See* Auto-In Work mode for a contrast.

MAP
Maintenance action process

MAPD
Multiapplication platform for DEFINITY

MA-UUI
Message-Associated User-to-User Signaling

Mbps
Megabits per second

M-Bus
Memory bus

Mbyte
Megabyte

MCC
Multicarrier cabinet

MCS
Message Center Service

MCT
Malicious Call Trace

MCU
Multipoint control unit

MDF
Main distribution frame

MDM
Modular data module

MDR
Message detail record

MEM
Memory

memory
A device into which information can be copied and held, and from which information can later be obtained.

memory shadowing link
An operating-system condition that provides a method for memory-resident programs to be more quickly accessed, allowing a system to reboot faster.

message center
An answering service that supplies agents to and stores messages for later retrieval.

message center agent
A member of a message-center hunt group who takes and retrieves messages for voice-terminal users.

MET
Multibutton electronic telephone

MF
Multifrequency

MFB
Multifunction board

MFC
Multifrequency code

MHz
Megahertz

MIM
Management information message

minor alarm
An indication of a failure that could affect customer service. Minor alarms are automatically displayed on LEDs on the attendant console and maintenance or alarming circuit pack, sent to the alarm log, and reported to a remote maintenance facility, if applicable.

MIPS
Million instructions per second

MIS
Management information system

MISCID
Miscellaneous identification

MMCS
Multimedia Call Server

MMCH
Multimedia call handling

MMI
Multimedia interface

MMS
Material Management Services

MO
Maintenance object

modem
A device that converts digital data signals to analog signals for transmission over telephone circuits. The analog signals are converted back to the original digital data signals by another modem at the other end of the circuit.

modem pooling
A capability that provides shared conversion resources (modems and data modules) for cost-effective access to analog facilities by data terminals. When needed, modem pooling inserts a conversion resource into the path of a data call. Modem pooling serves both outgoing and incoming calls.

modular processor data module (MPDM)
A processor data module (PDM) that can be configured to provide several kinds of interfaces (RS-232C, RS-449, and V.35) to customer-provided data terminal equipment (DTE). See also processor data module (PDM).

modular trunk data module (MTDM)
A trunk data module that can be configured to provide several kinds of interfaces (RS-232, RS-449, and V.35) to customer-provided data terminal equipment.

modulator-demodulator
See modem.

monitored call
See active-notification call.

MOS
Message-oriented signaling

MPDM
Modular processor data module

MS
Message server

ms
Millisecond

MS/T
Main satellite/tributary

MSA
Message servicing adjunct

MSG
Message service

MSL
Material stocking location

MSM
Modular System Management

MSS
Mass storage system

MSSNET
Mass storage/network control

MT
Management terminal

MTDM
Modular trunk data module

MTP
Maintenance tape processor

MTT
Multitasking terminal

multiappearance voice terminal
A terminal equipped with several call-appearance buttons for the same extension, allowing the user to handle more than one call on that same extension at the same time.

Multicarrier cabinet
A structure that holds one to five carriers. See also single-carrier cabinet.

Multifrequency Compelled (MFC) Release 2 (R2) signaling
A signal consisting of two frequency components, such that when a signal is transmitted from a switch, another signal acknowledging the transmitted signal is received by the switch. R2 designates signaling used in the United States and in countries outside the United States.

multiplexer
A device used to combine a number of individual channels into a single common bit stream for transmission.

multiplexing
A process whereby a transmission facility is divided into two or more channels, either by splitting the frequency band into a number of narrower bands or by dividing the transmission channel into successive time slots. See also time-division multiplexing (TDM).

multirate
The new N x DS0 service (see N x DS0).

MWL
Message-waiting lamp

N

N+1
Method of determining redundant backup requirements. Example: if four rectifier modules are required for a DC-powered single-carrier cabinet, a fifth rectifier module is installed for backup.

N x DS0
N x DS0, equivalently referred to as N x 64 kbps, is an emerging standard for wideband calls separate from H0, H11, and H12 ISDN channels. The emerging N x DS0 ISDN multirate circuit mode bearer service will provide circuit-switched calls with data-rate multiples of 64 kbps up to 1536 kbps on a T1 facility or up to 1920 kbps on an E1 facility. In the switch, N x DS0 channels will range up to 1984 kbps using NFAS E1 interfaces.

NANP
North American Numbering Plan

narrowband
A circuit-switched call at a data rate up to and including 64 kbps. All nonwideband switch calls are considered narrowband.

native terminal support
A predefined terminal type exists in switch software, eliminating the need to alias the terminal (that is, manually map call appearances and feature buttons onto some other natively supported terminal type).

NAU
Network access unit

NCA/TSC
Noncall-associated/temporary-signaling connection

NCOSS
Network Control Operations Support Center

NCSO
National Customer Support Organization

NEC
National Engineering Center

NEMA
National Electrical Manufacturer’s Association

NETCON
Network-control circuit pack

network
A series of points, nodes, or stations connected by communications channels.

network-specific facility (NSF)
An information element in an ISDN-PRI message that specifies which public-network service is used. NSF applies only when Call-by-Call Service Selection is used to access a public-network service.

network interface
A common boundary between two systems in an interconnected group of systems.

NFAS
See Nonfacility-associated signaling (NFAS).

NI
Network interface

NID
Network Inward Dialing

NM
Network management

NN
National number

node
A switching or control point for a network. Nodes are either tandem (they receive signals and pass them on) or terminal (they originate or terminate a transmission path).

Nonfacility-associated signaling (NFAS)
A method that allows multiple T1 and/or E1 facilities to share a single D-channel to form an ISDN-PRI. If D-channel backup is not used, one facility is configured with a D-channel, and the other facilities that share the D-channel are configured without D-channels. If D-channel backup is used, two facilities are configured to have D-channels (one D-channel on each facility), and the other facilities that share the D-channels are configured without D-channels.

NPA
Numbering-plan area

NPE
Network processing element

NQC
Number of queued calls

NSE
Night-service extension

NSU
Network sharing unit

null modem cable
Special wiring of an RS-232-C cable such that a computer can talk to another computer (or to a printer) without a modem.

NXX
Public-network office code

O

OA
Operator assisted

occurrence
See appearance.

OCM
Outbound Call Management

offered load
The traffic that would be generated by all the requests for service occurring within a monitored interval, usually one hour.

ONS
On-premises station

OPS
Off-premises station

OPX
Off-premises extension

OQT
Oldest queued time

OSHA
Occupational Safety and Health Act

OSI
Open Systems Interconnect

OSS
Operations Support System

OSSI
Operational Support System Interface

OTDR
Optical time-domain reflectometer

othersplit
The work state that indicates that an agent is currently active on another split's call, or in ACW for another split.

OTL
Originating Test Line

OTQ
Outgoing trunk queuing

outgoing gateway
A PBX that routes an incoming call on a trunk administered for Supplementary Services Protocol B to a trunk *not* administered for Supplementary Services Protocol B.

P

PACCON
Packet control

packet
A group of bits (including a message element, which is the data, and a control information element (IE), which is the header) used in packet switching and transmitted as a discrete unit. In

each packet, the message element and control IE are arranged in a specified format. See also packet bus and packet switching.

packet bus
A wide-bandwidth bus that transmits packets.

packet switching
A data-transmission technique whereby user information is segmented and routed in discrete data envelopes called packets, each with its own appended control information, for routing, sequencing, and error checking. Packet switching allows a channel to be occupied only during the transmission of a packet. On completion of the transmission, the channel is made available for the transfer of other packets. See also BX.25and packet.

PAD
Packet assembly/disassembly

paging trunk
A telecommunications channel used to access an amplifier for loudspeaker paging.

party/extension active on call
A party is on the call if he or she is actually connected to the call (in active talk or in held state). An originator of a call is always a party on the call. Alerting parties, busy parties, and tones are not parties on the call.

PBX
Private branch exchange

PC
See personal computer (PC).

PCM
See pulse-code modulation (PCM).

PCOL
Personal central-office line

PCOLG
Personal central-office line group

PCS
Permanent switched calls

PDM
See processor data module (PDM).

PDS
Premises Distribution System

PE
Processing element

PEC
Price element code

PEI
Processor element interchange

personal computer (PC)
A personally controllable microcomputer.

PGATE
Packet gateway

PGN
Partitioned group number

PI
Processor interface

PIB
Processor interface board

pickup group
A group of individuals authorized to answer any call directed to an extension within the group.

PIDB
Product image database

PKTINT
Packet interface

PL
Private line

PLS
Premises Lightwave System

PMS
Property Management System

PN
Port network

PNA
Private network access

POE
Processor occupancy evaluation

POP
Point of presence

port
A data- or voice-transmission access point on a device that is used for communicating with other devices.

port carrier
A carrier in a multicarrier cabinet or a single-carrier cabinet containing port circuit packs, power units, and service circuits. Also called a port cabinet in a single-carrier cabinet.

port network (PN)
A cabinet containing a TDM bus and packet bus to which the following components are connected: port circuit packs, one or two tone-clock circuit packs, a maintenance circuit pack, service circuit packs, and (optionally) up to four expansion interface (EI) circuit packs in DEFINITY ECS. Each PN is controlled either locally or remotely by a switch processing element (SPE). See also expansion port network (EPN) and processor port network (PPN).

port-network connectivity
The interconnection of port networks (PNs), regardless of whether the configuration uses direct or switched connectivity.

PPM
1. Parts per million
2. Periodic pulse metering

PPN
See processor port network (PPN).

PRI
See Primary Rate Interface (PRI).

primary extension
The main extension associated with the physical voice or data terminal.

Primary Rate Interface (PRI)
A standard ISDN frame format that specifies the protocol used between two or more communications systems. PRI runs at 1.544 Mbps and, as used in North America, provides 23 64-kbps B-channels (voice or data) and one 64-kbps D-channel (signaling). The D-channel is the 24th channel of the interface and contains multiplexed signaling information for the other 23 channels.

PRI endpoint (PE)
The wideband switching capability introduces PRI endpoints on switch line-side interfaces. A PRI endpoint consists of one or more contiguous B-channels on a line-side T1 or E1 ISDN PRI facility and has an extension. Endpoint applications have call-control capabilities over PRI endpoints.

principal
A terminal that has its primary extension bridged on one or more other terminals.

principal (user)
A person to whom a telephone is assigned and who has message-center coverage.

private network
A network used exclusively for the telecommunications needs of a particular customer.

private network office code (RNX)
The first three digits of a 7-digit private network number.

PROCR
Processor

processor carrier
See control carrier.

processor data module (PDM)
A device that provides an RS-232C DCE interface for connecting to data terminals, applications processors (APs), and host computers, and provides a DCP interface for connection to a communications system. See also modular processor data module (MPDM).

processor port network (PPN)
A port network controlled by a switch-processing element that is directly connected to that PN's TDM bus and LAN bus. See also port network (PN).

processor port network (PPN) control carrier
A carrier containing the maintenance circuit pack, tone/clock circuit pack, and SPE circuit packs for a processor port network (PPN) and, optionally, port circuit packs.

Property Management System (PMS)
A stand-alone computer used by lodging and health-services organizations for services such as reservations, housekeeping, and billing.

protocol
A set of conventions or rules governing the format and timing of message exchanges to control data movement and correction of errors.

PSC
Premises service consultant

PSDN
Packet-switch public data network

PT
Personal terminal

PTC
Positive temperature coefficient

PTT
Postal Telephone and Telegraph

public network
The network that can be openly accessed by all customers for local and long-distance calling.

pulse-code modulation (PCM)
An extension of pulse-amplitude modulation (PAM) in which carrier-signal pulses modulated by an analog signal, such as speech, are quantized and encoded to a digital, usually binary, format.

Q

QPPCN
Quality Protection Plan Change Notice

QSIG
A set of open standards for Enterprise Networking. QSIG is a protocol defining message exchanges (signalling) at the “Q” reference point between two PBXs.

quadrant
A group of six contiguous DS0s in fixed locations on an ISDN-PRI facility. Note that this term comes from T1 terminology (one-fourth of a T1), but there are five quadrants on an E1 ISDN-PRI facility (30B + D).

queue
An ordered sequence of calls waiting to be processed.

queuing
The process of holding calls in order of their arrival to await connection to an attendant, to an answering group, or to an idle trunk. Calls are automatically connected in first-in, first-out sequence.

R

RAM
See random-access memory (RAM).

random-access memory (RAM)
A storage arrangement whereby information can be retrieved at a speed independent of the location of the stored information.

RBS
Robbed-bit signaling

RC
Radio controller

RCL
Restricted call list

read-only memory (ROM)
A storage arrangement primarily for information-retrieval applications.

recall dial tone
Tones signalling that the system has completed a function (such as holding a call) and is ready to accept dialing.

redirection criteria
Information administered for each voice terminal's coverage path that determines when an incoming call is redirected to coverage.

Redirection on No Answer
An optional feature that redirects an unanswered ringing ACD call after an administered number of rings. The call is then redirected back to the agent.

remote home numbering-plan area code (RHNPA)
A foreign numbering-plan area code that is treated as a home area code by the Automatic Route Selection (ARS) feature. Calls can be allowed or denied based on the area code and the dialed CO code rather than just the area code. If the call is allowed, the ARS pattern used for the call is determined by these six digits.

Remote Operations Service Element (ROSE)
A CCITT and ISO standard that defines a notation and services that support interactions between the various entities that make up a distributed application.

REN
Ringer equivalency number

reorder tone
A tone to signal that at least one of the facilities, such as a trunk or a digit transmitter, needed for the call was not available.

report scheduler
Software that is used in conjunction with the system printer to schedule the days of the week and time of day that the desired reports are to be printed.

RFP
Request for proposal

RHNPA
See remote home numbering-plan area code (RHNPA).

RINL
Remote indirect neighbor link

RISC
Reduced-instruction-set computer

RLT
Release-link trunk

RMATS
Remote Maintenance, Administration, and Traffic System

RNX
Route-number index (private network office code)

ROM
See read-only memory (ROM).

RPN
Routing-plan number

RS-232C
A physical interface specified by the Electronic Industries Association (EIA). RS-232C transmits and receives asynchronous data at speeds of up to 19.2 kbps over cable distances of up to 50 feet.

RS-449
Recommended Standard 449

RSC
Regional Support Center

ROSE
See Remote Operations Service Element (ROSE).

S

S1
The first logical signalling channel of DCP. The channel is used to provide signaling information for DCP’s I1 channel.

S2
The second logical signaling channel of DCP. The channel is used to provide signaling information for DCP’s I2 channel.

SABM
Set Asynchronous Balance Mode

SAC
Send All Calls

SAKI
See sanity and control interface (SAKI).

sanity and control interface (SAKI)
A custom VLSI microchip located on each port circuit pack. The SAKI provides address recognition, buffering, and synchronization between the angel and the five control time slots that make up the control channel. The SAKI also scans and collects status information for the angel on its port circuit pack and, when polled, transmits this information to the archangel.

SAT
System access terminal

SCC
1. See single-carrier cabinet.
2. Serial communications controller

SCD
Switch-control driver

SCI
Switch communications interface

SCO
System control office

SCOTCH
Switch Conferencing for TDM Bus in Concentration Highway

SCSI
See small computer system interface (SCSI).

SDDN
Software-Defined Data Network

SDI
Switched Digital International

SDLC
Synchronous data-link control

SDN
Software-defined network

SFRL
Single-frequency return loss

SID
Station-identification number

simplex system
A system that has no redundant hardware.

simulated bridged appearance
The same as a temporary bridged appearance; allows the terminal user (usually the principal) to bridge onto a call that had been answered by another party on his or her behalf.

single-carrier cabinet
A combined cabinet and carrier unit that contains one carrier. See also Multicarrier cabinet.

single-line voice terminal
A voice terminal served by a single-line tip and ring circuit (models 500, 2500, 7101A, 7103A).

SIT
Special-information tones

small computer system interface (SCSI)
An ANSI bus standard that provides a high-level command interface between host computers and peripheral devices.

SMDR
Station Message Detail Recording

SN
Switch Node

SNA
Systems Network Architecture

SNC
Switch Node Clock

SNI
Switch Node Interface

SNMP
Simple Network Management Protocol

software
A set of computer programs that perform one or more tasks.

SPE
Switch Processing Element

SPID
Service Profile Identifier

split
See ACD work mode.

split condition
A condition whereby a caller is temporarily separated from a connection with an attendant. A split condition automatically occurs when the attendant, active on a call, presses the start button.

split number
The split's identity to the switch and BCMS.

split report
A report that provides historical traffic information for internally measured splits.

split (agent) status report
A report that provides real-time status and measurement data for internally measured agents and the split to which they are assigned.

SSI
Standard serial interface

SSM
Single-site management

SSV
Station service

ST3
Stratum 3 clock board

staffed
Indicates that an agent position is logged in. A staffed agent functions in one of four work modes: Auto-In, Manual-In, ACW, or AUX-Work.

STARLAN
Star-Based Local Area Network

Station Message Detail Recording (SMDR)
An obsolete term now called CDR — a switch feature that uses software and hardware to record call data. See Call Detail Recording (CDR).

standard serial interface (SSI)
A communications protocol developed for use with 500-type business communications terminals (BCTs) and 400-series printers.

status lamp
A green light that shows the status of a call appearance or a feature button by the state of the light (lit, flashing, fluttering, broken flutter, or unlit).

stroke counts
A method used by ACD agents to record up to nine customer-defined events per call when CMS is active.

SVN
Security-violation notification

switch
Any kind of telephone switching system. See also communications system.

switchhook
The buttons located under the receiver on a voice terminal.

switch-node (SN) carrier
A carrier containing a single switch node, power units, and, optionally, one or two DS1 converter circuit packs. An SN carrier is located in a center-stage switch.

switch-node (SN) clock
The circuit pack in an SN carrier that provides clock and maintenance alarm functions and environmental monitors.

switch-node interface (SNI)
The basic building block of a switch node. An SNI circuit pack controls the routing of circuit, packet, and control messages.

switch-node link (SNL)
The hardware that provides a bridge between two or more switch nodes. The SNL consists of the two SNI circuit packs residing on the switch nodes and the hardware connecting the SNIs. This hardware can include lightwave transceivers that convert the SNI’s electrical signals to light signals, the copper wire that connects the SNIs to the lightwave transceivers, a full-duplex fiber-optic cable, DS1 converter circuit cards and DS1 facilities if a company does not have rights to lay cable, and appropriate connectors.

switch-processing element (SPE)
A complex of circuit packs (processor, memory, disk controller, and bus-interface cards) mounted in a PPN control carrier. The SPE serves as the control element for that PPN and, optionally, for one or more EPNs.

SXS
Step-by-step

synchronous data transmission
A method of sending data in which discrete signal elements are sent at a fixed and continuous rate and specified times. See also association.

SYSAM
System Access and Administration

system administrator
The person who maintains overall customer responsibility for system administration. Generally, all administration functions are performed from the Management Terminal. The switch requires a special login, referred to as the system administrator login, to gain access to system-administration capabilities.

system printer
An optional printer that may be used to print scheduled reports via the report scheduler.

system report
A report that provides historical traffic information for internally measured splits.

system-status report
A report that provides real-time status information for internally measured splits.

system manager
A person responsible for specifying and administering features and services for a system.

system reload
A process that allows stored data to be written from a tape into the system memory (normally after a power outage).

T

T1
A digital transmission standard that in North America carries traffic at the DS1 rate of 1.544 Mbps. A T1 facility is divided into 24 channels (DS0s) of 64 kbps. These 24 channels, with an overall digital rate of 1.536 Mbps, and an 8-kbps framing and synchronization channel make up the 1.544-Mbps transmission. When a D-channel is present, it occupies channel 24. T1 facilities are also used in Japan and some Middle-Eastern countries.

TAAS
Trunk Answer from Any Station

TABS
Telemetry asynchronous block serial

TAC
Trunk-access code

tandem switch
A switch within an electronic tandem network (ETN) that provides the logic to determine the best route for a network call, possibly modifies the digits outpulsed, and allows or denies certain calls to certain users.

tandem through
The switched connection of an incoming trunk to an outgoing trunk without human intervention.

tandem tie-trunk network (TTTN)
A private network that interconnects several customer switching systems.

TC
Technical consultant

TCM
Traveling class mark

TDM
See time-division multiplexing (TDM).

TDR
Time-of-day routing

TEG
Terminating extension group

terminal
A device that sends and receives data within a system. See also administration terminal.

tie trunk
A telecommunications channel that directly connects two private switching systems.

time-division multiplex (TDM) bus
A bus that is time-shared regularly by preallocating short time slots to each transmitter. In a PBX, all port circuits are connected to the TDM bus, permitting any port to send a signal to any other port.

time-division multiplexing (TDM)
Multiplexing that divides a transmission channel into successive time slots. See also multiplexing.

time interval
The period of time, either one hour or one-half hour, that BCMS measurements are collected for a reports.

time slice
See time interval.

time slot
64 kbps of digital information structured as eight bits every 125 microseconds. In the switch, a time slot refers to either a DS0 on a T1 or E1 facility or a 64-kbps unit on the TDM bus or fiber connection between port networks.

time slot sequence integrity
The situation whereby the N octets of a wideband call that are transmitted in one T1 or E1 frame arrive at the output in the same order that they were introduced.

to control
An application can invoke *Third Party Call Control* capabilities using either an adjunct-control or domain-control association.

to monitor
An application can receive *event reports* on an active-notification, adjunct-control, or domain-control association.

TOD
Time of day

tone ringer
A device with a speaker, used in electronic voice terminals to alert the user.

TOP
Task-oriented protocol

trunk
A dedicated telecommunications channel between two communications systems or COs.

trunk allocation
The manner in which trunks are selected to form wideband channels.

trunk-data module
A device that connects off-premises private-line trunk facilities and DEFINITY ECS. The trunk-data module converts between the RS-232C and the DCP, and can connect to DDD modems as the DCP member of a modem pool.

trunk group
Telecommunications channels assigned as a group for certain functions that can be used interchangeably between two communications systems or COs.

TSC
Technical Service Center

TTI
Terminal translation initialization

TTR
Touch-tone receiver

TTT
Terminating trunk transmission

TTTN
See tandem tie-trunk network (TTTN).

TTY
Teletypewriter

U

UAP
Usage-allocation plan

UART
Universal asynchronous transmitter

UCD
Uniform call distribution

UCL
Unrestricted call list

UDP
See Uniform Dial Plan (UDP).

UL
Underwriter Laboratories

UM
User manager

Uniform Dial Plan (UDP)
A feature that allows a unique 4- or 5-digit number assignment for each terminal in a multiswitch configuration such as a DCS or main-satellite-tributary system.

UNMA
Unified Network Management Architecture

UNP
Uniform numbering plan

UPS
Uninterruptible power supply

USOP
User service-order profile

UUCP
UNIX-to-UNIX Communications Protocol

UUI
User-to-user information

V

VAR
Value-added reseller

VDN
See vector directory number (VDN).

vector directory number (VDN)
An extension that provides access to the Vectoring feature on the switch. Vectoring allows a customer to specify the treatment of incoming calls based on the dialed number.

vector-controlled split
A hunt group or ACD split administered with the vector field enabled. Access to such a split is possible only by dialing a VDN extension.

VIS
Voice Information System

VLSI
Very-large-scale integration

VM
Voltmeter

VNI
Virtual nodepoint identifier

voice terminal
A single-line or multiappearance telephone.

W

WATS
See Wide Area Telecommunications Service (WATS).

WCC
World-Class Core

WCR
World-Class Routing

WCTD
World-Class Tone Detection

WFB
Wireless fixed base

Wide Area Telecommunications Service (WATS)
A service in the United States that allows calls to certain areas for a flat-rate charge based on expected usage.

wideband
A circuit-switched call at a data rate greater than 64 kbps. A circuit-switched call on a single T1 or E1 facility with a bandwidth between 128 and 1536 (T1) or 1984 (E1) kbps in multiples of 64 kbps. H0, H11, H12, and N x DS0 calls are wideband.

wideband access endpoint
Access endpoints, extended with wideband switching to include wideband access endpoints. A wideband access endpoint consists of one or more contiguous DS0s on a line-side T1 or E1 facility and has an extension. The Administered Connections feature provides call control for calls originating from wideband access endpoints.

wink-start tie trunk
A trunk with which, after making a connection with a distant switching system for an outgoing call, the system waits for a momentary signal (wink) before sending the digits of the called number. Similarly, on an incoming call, the system sends the wink signal when ready to receive digits.

work mode
One of four states (Auto-In, Manual-In, ACW, AUX-Work) that an ACD agent can be in. Upon logging in, an agent enters AUX-Work mode. To become available to receive ACD calls, the agent enters Auto-In or Manual-In mode. To do work associated with a completed ACD call, an agent enters ACW mode.

work state
An ACD agent may be a member of up to three different splits. Each ACD agent continuously exhibits a work state for every split of which it is a member. Valid work states are Avail, Unstaffed, AUX-Work, ACW, ACD (answering an ACD call), ExtIn, ExtOut, and OtherSpl. An agent's work state for a particular split may change for a variety of reasons (example: when a call is answered or abandoned, or the agent changes work modes). The BCMS feature monitors work states and uses this information to provide BCMS reports.

write operation
The process of putting information onto a storage medium, such as a hard disk.

WSA
Waiting session accept

WSS
Wireless Subscriber System

Z

ZCS
Zero Code Suppression

Index

Numerics

A

B

C

D

E

F

G

H

I

J

L

M

N

P

R

S

T

U

V