Nortel Networks Communication Server 1000
Nortel Networks Communication Server 1000 Release 4.0

Equipment Identification

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Revision history

September 2004

Standard 20.00. This document is up-issued for Communication Server 1000 Release 4.0.

October 2003

Standard 19.00. This document is up-issued to support Succession 3.0 Software. This document is up-issued to include equipment listings for Succession 1000 systems, Meridian 1 Small Systems, and Succession 1000M Small Systems.

January 2002

Standard 18.00. This document is up-issued to support Meridian 1 Release 25.40 systems. This document is up-issued to include Call Processor Pentium (CP PII) and Fibre Network Fabric (FNF) for Option 81C.

April 2000

Standard 17.00. This is a global document and is up-issued for X11 Release 25.0x. Document changes include removal of: redundant content; references to equipment types except Options 11C, 51C, 61C, and 81C; and references to previous software releases.

June 1999

Standard, release 16.00. This document is reissued to include information on the NT5D03 Call Processor Card. Changes to technical content are noted by revision bars in the margins.

October 1997

Standard, release 15.00. This document is reissued to include information on the NT5D10 Call Processor Card, the NT5D61 Input/Output Disk Unit with CD-ROM (IODU/C), the NTAG36 Meridian Integrated RAN Card, the NT5D51 Meridian Integrated Conference Bridge card, the NT8D41BA Quad

Serial Data Interface Paddle Board, and the NT5D60AA XCMC Card. Changes are noted by revision bars in the margins.

August 1996

Standard, release 14.00. This document is reissued to include new and updated information. Changes to technical content are noted by revision bars in the margins.

August 1996

Standard, release 13.00. This document is reissued for X11 Release 22 to include new and updated information on equipment. Changes to technical content are noted by revision bars in the margins.

December 1995

Standard, release 12.00. This document is reissued to include information on the NT9D19 Call Processor Card, copy edits, and updated index that includes international items.

July 1995

Standard, release 11.00. This document is reissued to include information on Meridian 1 Option 81C and international text. Changes to technical content are noted by revision bars in the margins.

An updated index was not available at the time of publication and therefore, the index included herein does not contain references to international items. This deficiency will be corrected in the next standard edition of this document.

December 1994

Standard release 10.00. This document is reissued for technical content changes.

December 1994

Standard, release 9.00. This document is reissued to include information on the Small Systems Multi Drive Unit (SMDU), Meridian 1 Option 51C, and edits. Changes to technical content are noted by revision bars in the margins.

April 1994

Standard, release 8.00. This document is reissued to include information on Option 61C. Changes to technical content are noted by revision bars in the margins.

August 1993

Standard, release 7.00. Changes to technical content are noted by revision bars in the margins.

April 1993

Standard, release 6.00. Changes to technical content are noted by revision bars in the margins.

December 1992

Standard, release 5.00. This document is reissued to include information on system Option 81, equipment required for compatibility with X11 release 18, and Product Bulletins 91062 (November 1991), 92027 (July 1992), and 92039 (October 1992). Due to the extent of the changes, revision bars are omitted.

December 1991

Standard, release 4.00. This document is reissued to include technical content updates. Due to the extent of the changes, revision bars are omitted.

December 1990

This document is reissued to include updates for X11 release 16. Changes are indicated by revision marks in the margins.

Contents

About this document

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

Subject

This document identifies equipment that can be used with Communication Server 1000 and Meridian 1 systems.

Note on legacy products and releases

This NTP contains information about systems, components, and features that are compatible with Nortel Networks Communication Server 1000 Release 4.0 software. For more information on legacy products and releases, click the **Technical Documentation** link under **Support** on the Nortel Networks home page:

http://www.nortelnetworks.com/

Applicable systems

This document applies to the following systems:

- Communication Server 1000S (CS 1000S)
- Communication Server 1000M Chassis (CS 1000M Chassis)
- Communication Server 1000M Cabinet (CS 1000M Cabinet)
- Communication Server 1000M Half Group (CS 1000M HG)
- Communication Server 1000M Single Group (CS 1000M SG)

- Communication Server 1000M Multi Group (CS 1000M MG)
- Communication Server 1000E (CS 1000E)
- Meridian 1 PBX 11C Chassis (Meridian 1 PBX 11C Chassis)
- Meridian 1 PBX 11C Cabinet (Meridian 1 PBX 11C Cabinet)
- Meridian 1 PBX 51C
- Meridian 1 PBX 61C
- Meridian 1 PBX 61C CP PII
- Meridian 1 PBX 81
- Meridian 1 PBX 81C
- Meridian 1 PBX 81C CP PII

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

System migration

When particular Meridian 1 systems are upgraded to run CS 1000 Release 4.0 software and configured to include a Signaling Server, they become CS 1000M systems. Table 1 lists each Meridian 1 system that supports an upgrade path to a CS 1000M system.

Table 1
Meridian 1 systems to CS 1000M systems (Part 1 of 2)

This Meridian 1 system...	Maps to this CS 1000M system
Meridian 1 PBX 11C Chassis	CS 1000M Chassis
Meridian 1 PBX 11C Cabinet	CS 1000M Cabinet
Meridian 1 PBX 51C	CS 1000M Half Group
Meridian 1 PBX 61C	CS 1000M Single Group
Meridian 1 PBX 61C CP PII	CS 1000M Single Group
Meridian 1 PBX 81	CS 1000M Multi Group

Table 1
Meridian 1 systems to CS 1000M systems (Part 2 of 2)

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

For more information, see one or more of the following NTPs:

- *Communication Server 1000M and Meridian 1: Small System Upgrade Procedures* (553-3011-258)
- *Communication Server 1000M and Meridian 1: Large System Upgrade Procedures* (553-3021-258)
- *Communication Server 1000S: Upgrade Procedures* (553-3031-258)

Intended audience

This document is intended for individuals responsible for identifying equipment.

Conventions

Terminology

In this document, the following systems are referred to generically as "system":

- Communication Server 1000S (CS 1000S)
- Communication Server 1000M (CS 1000M)
- Communication Server 1000E (CS 1000E)
- Meridian 1

The following systems are referred to generically as "Small System":

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

- Meridian 1 PBX 11C Chassis (Meridian 1 PBX 11C Chassis)
- Meridian 1 PBX 11C Cabinet (Meridian 1 PBX 11C Cabinet)

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

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

Related information

This section lists information sources that relate to this document.

NTPs

The following NTPs are referenced in this document:

- *MPP600 Modular Power Plant: Description, Installation, Operation and Maintenance Manual* (167-9021-105)
- *Meridian Communications Unit and Meridian Communications Adapter: Description, Installation, Administration, Operation* (553-2731-109)
- *Product Compatibility* (553-3001-156)
- *Circuit Card: Description and Installation* (553-3001-211)
- *WLAN IP Telephony: Installation and Configuration* (553-3001-304)
- *Features and Services* (553-3001-306)

- *Integrated Conference Bridge: Service Implementation Guide* (553-3001-358)
- *Telephones and Consoles: Description, Installation, and Operation* (553-3001-367)
- *IP Phones: Description, Installation, and Operation* (553-3001-368)
- *DECT: Description, Planning, Installation, and Operation* (553-3001-370)
- *Communication Server 1000M and Meridian 1: Small System Planning and Engineering* (553-3011-120)
- *Communication Server 1000M and Meridian 1: Small System Installation and Configuration* (553-3011-210)
- *Communication Server 1000M and Meridian 1: Small System Upgrade Procedures* (553-3011-258)
- *Communication Server 1000M and Meridian 1: Large System Planning and Engineering* (553-3021-120)
- *Communication Server 1000M and Meridian 1: Large System Installation and Configuration* (553-3021-210)
- *Communication Server 1000M and Meridian 1: Large System Upgrade Procedures* (553-3021-258)
- *Communication Server 1000S: Planning and Engineering* (553-3031-120)
- *Remote Gateway 9150: Installation and Administration Guide (555-8421-215)*

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http://www.nortelnetworks.com/

CD-ROM

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

General information

Contents

This section contains information on the following topics:

Feature description

This document identifies CS 1000S Integrated Services Network equipment that is currently supported.

Equipment requirements

The system option that best meets individual requirements is determined by the following factors:

- number and type of terminal devices required
- number and type of trunks required
- traffic requirements for lines, trunks, and consoles
- special features required
- growth forecast in terms of ports and features

Refer to *Communication Server 1000S: Planning and Engineering* (553-3031-120), *Communication Server 1000E: Planning and Engineering* (553-3041-120), *Communication Server 1000M and Meridian 1: Large System Planning and Engineering* (553-3021-120), and *Communication Server 1000M and Meridian 1: Small System Planning and Engineering* (553-3011-120) for guidelines on system requirements. Consult your Nortel Networks representative and use a configuration tool, such as Autoquote or Meridian Configurator, to fully engineer a system.

Application module equipment

For information on application module equipment, see the specific documentation for the application.

Conversion and expansion packages

Software conversion packages and hardware upgrade packages are available to expand system capabilities. For information on these packages and procedures for performing conversions and upgrades, see *Communication Server 1000M and Meridian 1: Small System Upgrade Procedures* (553-3011-258), *Communication Server 1000M and Meridian 1: Large System Upgrade Procedures* (553-3021-258), and *Communication Server 1000M and Meridian 1: Large System Upgrade Procedures* (553-3021-258).

Equipment compatibility

Equipment compatibility is not listed in this document. For information on the compatibility of specific equipment, refer to *Product Compatibility* (553-3001-156).

Equipment availability

The equipment listed in this document is available through Nortel Networks and Nortel Networks distributors. Equipment may be discontinued at any time. Contact a Nortel Networks representative for information on equipment availability.

Station equipment

Station equipment, such as telephones and consoles, are not described in this document. Refer to *WLAN IP Telephony: Installation and Configuration* (553-3001-304), *Telephones and Consoles: Description, Installation, and Operation* (553-3001-367), *IP Phones: Description, Installation, and Operation* (553-3001-368) and *DECT: Description, Planning, Installation, and Operation* (553-3001-370).

Software packages

A variety of software packages provide basic and advanced system features. For information on software packages and features, see *Features and Services* (553-3001-306).

System components

Contents

This section contains information on the following topics:

Introduction

This chapter identifies system components supported for use in Meridian 1 and CS 1000 systems.

Universal Equipment Modules

Universal Equipment Modules (UEM) are used in Large Systems. Each UEM is a self-contained unit that, when equipped, houses a card cage and backplane, power and ground cabling, power units, input/output (I/O) panels, circuit cards, and cables. When the card cage is installed, the function of the UEM is established (for example, it becomes a CPU/Network Module) and the module is no longer “universal.”

Without covers, each module is approximately 81.3 cm wide by 52.1 cm deep by 43.2 cm high (32 in. by 20.5 in. by 17 in.). With the front and rear covers

in place, the UEM is 55.9 cm (22 in.) deep. A module weighs approximately 21.8 kg (48 lb) before circuit cards are installed.

The cards that can be used in each module are listed in this document. For specific card slot assignments, see *Circuit Card: Description and Installation* (553-3001-211) for listings by card or *Communication Server 1000M and Meridian 1: Large System Planning and Engineering* (553-3021-120) for listings by module.

NT4N41 cPCI® Core/Network Module

Houses an NT4N40AA card cage that contains both the main processor cards in a Core shelf, and the first Network group in a Network shelf. The Call Processor Pentium II® (CP PII) Core/Net card cage contains two distinct backplanes:

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

Power requirements:

- NT4N41AB AC systems: NT8D29 CE Power Supply
- NT4N41DB DC systems: NT6D41CA Power Supply

The Core shelf contains a 3-Port Extender (3PE) Termination Panel on the back of each CP PII Core/Net card cage that provides connections for the cPCI Core to Network Interface (cCNI) to 3PE cables. The shelf also contains 17 card slots that support:

- cPCI Multi-Media Disk Unit (MMDU)
- Call Processor Pentium II (CP PII)
- System Utility (Sys Util)
- cPCI Core to Network Interface (cCNI)
- Optical Cable Management Card (OCMC)

The first Network group contains 12 card slots that support:

- 3-Port Extender (3PE) card
- Fiber Junctor Interface (FIJI) card (Meridian 1 PBX 81C, and CS 1000M MG only)
- Conference/TDS (CT) card
- D-Channel Interface (DCHI) card
- Multipurpose ISDN Signaling Processor (MISP) card
- Multipurpose Serial Data Link (MSDL) card
- Peripheral Signaling (PS) card
- Enhanced Network (ENET) and/or Superloop Network (SNET) card
- Primary Rate Interface (PRI) and/or Digital Trunk Interface (DTI) card

NT4N96 cPCI Upgrade Kit

Upgrade kit for cPCI Card Cages.

The NT4N96 is available in two versions:

- NT4N97AA AC power
- NT4N97BA DC power

NT5D21 Core/Network Module

Houses common control and network cards, the disk drive unit, and the other common equipment cards listed below.

Power requirements:

- AC systems: NT8D29 CE Power Supply
- DC systems: NT6D41CA Power Supply

This module contains 18 card slots that support:

- 3-Port Extender (3PE) card
- CP4 Call Processor card

- Input/Output Disk Unit with CD-ROM (IODU/C)
- Core to Network Interface 2 card (CNI-2)
- cPCI core to Network Interface card (cCNI-2)
- Core to Network Interface 3 card (CNI-3)
- Conference/TDS (CT) card
- D-Channel Interface (DCHI) card
- Multipurpose ISDN Signaling Processor (MISP) card
- Multipurpose Serial Data Link (MSDL) card
- Peripheral Signaling (PS) card
- Enhanced Network (ENET) and/or Superloop Network (SNET) card
- Primary Rate Interface (PRI) and/or Digital Trunk Interface (DTI) card
- Clock Controller (CC) card (in CS 1000M SG systems)

NT8D35 Network Module

Houses network cards in CS 1000M MG or Meridian 1 PBX 81C system. Can also be used as a PRI and/or DTI expansion module with any Large System.

Power requirements:

- AC systems: NT8D35BA Module; NT8D29 CE Power Supply
- DC systems: NT8D35EA Module; NT6D41BA Power Supply

This module contains 15 card slots that can support:

- 3-Port Extender (3PE) card
- Conference/TDS (CT) card
- Fiber Network Interface (FIJI)
- Multipurpose ISDN Signaling Processor (MISP) card
- Multipurpose Serial Data Link (MSDL) card
- Enhanced Network (ENET) and/or Superloop Network (SNET) card

- Peripheral Signaling (PS) card
- Primary Rate Interface (PRI) and/or Digital Trunk Interface (DTI) card
- Serial Data Interface (SDI) card
- Clock Controller (CC) card

NT8D37 Intelligent Peripheral Equipment (IPE) Module

Houses one Controller card (NT8D01BC Controller-4 or NT8D01BD Controller-2) and up to 16 Intelligent Peripheral Equipment (IPE) cards. All of the IPE card slots are fully cabled for 24 pairs.

Power requirements:

- AC systems: NT8D37BA; NT8D06 PE Power Supply
- DC systems: NT8D37EC; NT6D40 PE Power Supply

Note: When analog (500/2500-type) telephones are equipped, a ringing generator (NT8D21 for AC systems or NT6D42 for DC systems) is required.

This module contains 16 IPE card slots (in addition to the slot for the Controller card) that support the following cards:

- Analog Line card (ALC)
- Analog Message Waiting Line card (MWALC)
- Data Access card (DAC)
- Digital Line card (DLC)
- Digitone Receiver (DTR) card
- E&M Trunk card (E&M)
- S/T Interface Line card (SILC)
- Universal Interface Line card (UILC)
- Universal Trunk (UT) card

Card Cage Assemblies

Consists of a sheet metal case and an associated backplane. Provides the physical framework that houses the circuit cards and power supplies within the UEM. Card cage assemblies and their corresponding modules are listed in Table 2.

Table 2
Card cage assemblies

Card cage assembly	Corresponding module
NT4N40AA	NT4N41 cPCI Core/Network Module
NT5D2104	NT5D21 Core/Network Module
NT8D3507	NT8D35 Network Module
NT8D3703	NT8D37 IPE Module

Faceplates

Blank faceplate for the following:

- NT7D05AA Ringing Generator slot
- NT7D06AA Network Module 2.75 in.
- NT8D31AA IPB Slot 20/IPE 0.785 in.
- NT8D31AB Network Slots 1.0 in.
- NT8D31AD Dummy Faceplate Assembly 0.785 in.
- NT8D31AE Tape Drive
- P906308 cPCI/PCI slot

Cabinets and chassis

Cabinets and chassis are mounted on the wall or in a rack assembly.

Cabinet systems can be expanded using an NTAK11 Cabinet as the main cabinet, and any combination of other NTAK11 Cabinets and NTDK91 Chassis as expansion units. Likewise, chassis systems can be expanded using

an NTDK91 as the main chassis and other NTDK91 Chassis and NTAK11 Cabinets as required. Main and expansion units must be equipped with the NTDK20 Small System Controller. Refer to *Communication Server 1000M and Meridian 1: Small System Installation and Configuration* (553-3011-210) for details about this mix-and-match expansion.

NT1P70AA Wall Mount Fiber Remote Cabinet

Extends the distance between the IPE shelves and Common Equipment using single or multi-mode fiber. The NT1P70 connects to a T1P61 Fiber Remote Network Card.

The NT1P70 supports the following:

- NTDK20 Small System Controller — mandatory, in slot 0 only
- any IPE card — in slots 1 to 9

NTAK11BD Cabinet

Houses the NTDK20 Small System Controller card that handles call processing.

A maximum of five cabinets can be connected for additional capacity. In a multi-cabinet configuration, one cabinet acts as the main cabinet and the other cabinets act as expansion cabinets.

For IP connectivity, the following daughterboards are required:

- NTDK83 dual port 100BaseT
- NTTK02 dual port 100BaseF
- NTDK99 single port 100BaseT
- NTTK01 single port 100BaseF

For non-IP connectivity, the main cabinet must contain a Fiber Expansion Daughterboard, either the dual port NTDK84 or the single port NTDK22. Each expansion cabinet must contain the NTDK23 Fiber Receiver card. Fiber connectivity is supported only when the expansion cabinets are located within 10m (33 ft) of the main cabinet.

NTAK27AA Pedestal Assembly Option

Enables Cabinet to mount in a pedestal.

NTDK91BB Chassis

Houses the NTDK20 Small System Controller card to perform call processing.

The NTDK91 has five slots, and supports the following:

- NTDK20 Small System Controller card - mandatory; in slot 0
- any IPE or CE cards – in slots 1, 2, and 3
- NTDK16 Digital Line Card - dedicated; in slot 4

The NTDK91 Chassis can be connected to the NTDK92 Chassis Expander to increase line capacity.

The NTDK91 can be installed in the following positions:

- on a wall
  - — vertically – NTTK08AA Chassis Installation Kit
  - — horizontally – NTTK11AA Chassis Installation Kit
- in a rack or equipment cabinet – NTTK09 Chassis Installation Kit

NTDK92BB Chassis Expander

Connects to the NTDK91 Chassis to provide additional line capacity.

The NTK92 supports the following:

- Meridian Mail - in slot 10 only
- any IPE card – in slots 7, 8, and 9

The NTDK92 can be installed in the following positions:

- on a wall
  - — vertically – NTTK08AA Chassis Installation Kit

— horizontally – NTTK11AA Chassis Installation Kit

- in a rack or equipment cabinet – NTTK09 Chassis Installation Kit

NTDU14CA Chassis

Houses a Small System Controller card and four slots for flexible configuration of line, trunk and application cards. It supports one NTDU15 Chassis Expander for additional capacity.

The NTDU14 has five slots. Slot 0 is dedicated to the NTDK20 Small System Controller (SSC) card. Slots 1 to 4 support any combination of the following cards:

- digital trunk cards
- analog trunk cards
- analog line cards
- digital line cards
- Voice Gateway Media Cards
- applications such as Nortel Networks Integrated Recorded Announcer and CallPilot Mini

Each chassis with a digital trunk must have one clock controller.

NTDU15CA Chassis Expander

Provides four additional universal card slots for the NTDU14 Chassis for additional capacity.

The four slots support the following cards:

- analog trunk cards
- analog line cards
- digital line cards
- Voice Gateway Media Cards
- applications such as Integrated Recorded Announcer and CallPilot Mini

The NTDU15 does not support digital trunk cards.

NTTK08AA Chassis Vertical Wall Mount Kit

Contains hardware required to mount the chassis on the wall in a vertical position.

NTTK10AA Chassis Shelf Table Mount Kit

Contains hardware required to mount the chassis in an equipment rack or shelf.

NTTK11AA Chassis Horizontal Wall Mount Kit

Contains hardware required to mount the chassis on the wall in a horizontal position.

Servers

The Call Server and Signaling Server are installed in a customer-supplied 19-inch rack.

NTDU27DA Signaling Server

Provides signaling interfaces to the IP network using software components that run on a real-time operating system (vxWorks). It handles SIP/H.323 signaling and IP Phone signaling, and provides Network Routing Service (NRS) software.

The NTDU27 contains no user-serviceable parts, including the power supply. Rack-mounting hardware is included.

The NTDU27 measures approximately 4.3 cm high by 42.5 cm by 55.9 cm (1.70 in. by 16.75 in. by 22 in.). When fully configured, it weighs approximately 10.5 kg (23 lb).

NTDU80CA Signaling Server Memory Upgrade Kit

Contains 512MB DIMM boards with which to upgrade the memory on the NTDU27 Signaling Server.

NTDU30BA Call Server

Contains an NTDK20 Small System Controller card that provides all of the call processing logic for the CS 1000S system. The power supply is factory installed and is not customer-replaceable. DC power is not supported.

NTDU62AA Call Server

Provides a single instance of the call processing function for the CS 1000E system, and two are required to provide the standard redundant CS 1000E Core. It comprises a chassis containing a NT4N64AA CP PII Call Processor card, a System Utility Card NT4N48BA, along with a NTDU67AA Drive Assembly, NTDU65AA Power Supply, and Fans. All items are exchangeable. This Call Server is AC powered only.

Structural components

NT7D00 Top Cap

Mounts on the highest module of each column. Approximately 81.3 cm wide by 55.9 cm deep by 10.2 cm high (32 in. by 22 in. by 4 in.) and 3.6 kg (8 lb). Consists of front and rear air exhaust grills and thermal sensors.

If ceiling-hung racks are used, the rear top cap grill must be replaced with a P0699851 Top Cap Cable Egress Panel.

There are two versions of the top cap:

- NT7D00AA for AC power
- NT7D00BA for DC power

NT8D49 Column Spacer Kit

Bolts modules together for side-by-side expansion and maintains shielding against electromagnetic interference (EMI) and radio-frequency interference (RFI). The spacer kit includes:

- eight bushings
- expansion spacer
- RF gasketing

The NT8D49 is available for two separation distances:

- NT8D49AA 7.0 cm (2.75 in.)
- NT8D49BA 13.3 cm (5.25 in)

NTTK09AA Rack-mount installation kit

Used to install the NTDU06 Call Server, NTDU14 Chassis, and NTDU015 Expansion Chassis in a user-supplied 19-inch rack.

The NTTK09 contains the following pieces:

- 1 Left rack-mount bracket P0904844
- 1 Right rack-mount bracket P0904845
- 1 Left shelf mounting bracket U/O NTTK09AA P0906672
- 8 Screws, 0.216-24 X 0.500 STL 289A P097F813
- 4 Sems, ext tooth washer pan head, CR type 1A, 0.164-32 X P0719943
- 1 Right shelf mounting bracket U/O NTTK09AA P0906671
- 4 Sems, ext tooth washer pan head, CR type 1A, 0.138-3 P0719587

Pedestal and components

The base for each column. Approximately 81.3 cm wide by 66 cm deep by 25.4 cm high (32 in. by 26 in. by 10 in.) and 13.6 kg (30 lb) empty. Leveling feet are provided for up to four tiers; a caster option is available for up to two tiers.

There are two versions of the pedestal:

- NT8D27BB for AC power
- NT7D09CA for DC power

The NT8D27BB and NT7D09CA pedestals house the following field-replaceable assemblies:

- air filter P0699798
- air grill P0699797
- blower unit NT8D52AB for AC power
  NT8D52DD for DC power
- leveling foot A0318207
- Power Distribution Unit (PDU) NT8D53CA for AC power
- system monitor NT8D22

Power and cooling equipment

Contents

This section contains information on the following topics:

Introduction

This chapter identifies power and cooling equipment supported for use in Meridian 1 and CS 1000 systems.

Equipment: A0000000 – A9999999

A0355200 Power Failure Transfer Unit

Provides an interface between Central Office (CO) lines, the Large System, and analog (500/2500-type) telephones (rotary dial and push-button). Allows eight telephones to be connected directly to the CO lines in the event of a power failure or malfunction. The Power Failure Transfer Unit (PFTU) is invisible during normal operations.

The PFTU contains eight circuits and additional circuitry that converts Loop Start Trunks to Ground Start Trunks. In addition, if the telephone is already off-hook and there is an emergency transfer, the telephone will not be disconnected or the call will be lost. (These features are not available on the QUA6A PFTU unit).

Approximately 12.1 cm wide by 34.3 cm long by 4.1 cm high (4.75 in. by 13.5 in. by 3.5 in.). The wall-mount unit connects to the main distribution frame with two 25-pair cables.

Requires approximately 200 mA of –48 V DC power. In DC-powered systems, the PFTU is powered from a spare output on the power distribution panel in the power system. In AC-powered systems, the PFTU is powered by an AO367916 power supply.

A0367916 Power Supply –48V DC

A wall-mount unit that powers the PFTU in AC-powered systems. Converts 120 V AC (nominal) to –48 V DC (nominal) with a 1.25-amp output. Can also power other auxiliary devices that require –48 V power.

Equipment: MAA000 – MZZ999

MFA150 Modular Power System

The MFA150 is a modular, front-access power system with a positive ground and –48 V DC output capacity of 150 amps, provided in 25-amp increments using plug-in NT5C06 rectifier modules.

The complete power plant is available in two configurations, described in detail in *Communication Server 1000M and Meridian 1: Large System Planning and Engineering* (553-3021-120). Each is a complete power bay with an NT6C14GB Control and Distribution Panel mounted on an NT6C40CF Seismic Rack. The two configurations are:

- NT5C90EF - single MPS75 shelf, with a capacity of 75 amps
- NT5C90EG - dual-shelf configuration, with a capacity of 150 amps

The MFA150 power system requires one 50-amp power feed per shelf.

MPP600 Modular Power Plant

The MPP600 is a modular power distribution and control system. It is contained in a cabinet that provides front and rear access. The power plant provides –48 V DC output at a maximum capacity of 600 amps, provided in 50-amp increments by up to 12 plug-in rectifier modules.

The NT5C07 Modular Power Rectifiers are contained in one or two cabinets, providing 300 amps per cabinet. Each rectifier requires one 20-amp feed of single-phase 60 Hz, 208 V or 240 V AC input.

For information on the MPP600 Modular Power Plant, see the following documents:

- *MPP600 Modular Power Plant: Description, installation, operation and maintenance manual* (167-9021-105)
- *Communication Server 1000M and Meridian 1: Large System Planning and Engineering* (553-3021-120)

Equipment: NT1A000 – NT9Z999

NT4N49AA Four Feed Power Distribution Unit (PDU)

Provides independent power feeds to each of four modules in a stack. The NT4N49 is backwards compatible, and can also replace an existing PDU in a stack if required.

NT5C06CC MPR25 Modular Power Rectifier

A switched mode rectifier that operates on single-phase, 50/60 Hz, AC service on 208/240 V nominal DC input. If batteries are connected, the rectifier can operate in either the float or equalize mode.

NT5C07AC MPR50 Modular Power Rectifier

A switched mode rectifier that converts 208/240 V AC to -56 V DC with a 50 A output. Up to ten parallel rectifiers can be used in parallel for a total system capacity of 500 A.

NT5C10CC MPS75 Modular Power Shelf

Supports three 25 A MPR25 Rectifiers. One shelf is used in a single-shelf MFA150 power system. Two shelves are used in a dual-shelf MFA150 power system.?

NT5C11BC MFA150 Battery Tray

Provides a shelf for smaller gel-cell type batteries used to back up Small Systems. The tray mounts on the 4-foot relay rack below the second power shelf.

NT5C90EF 75 A Single Modular Power Cabinet

Consists of an MFA150 Distribution Unit that supports the following:

- 16 circuit breakers
- miscellaneous auxiliary circuit fuses
- a volt/ammeter
- control circuit
- a 75 A single modular power shelf with three 25 A rectifiers

The NT5C90EF mounts in a 4-foot relay rack. It is essentially a base 75 A MFA 150 power system without the rectifiers and alarm cable.

NT5C90EG 150 A Dual Modular Power Cabinet

Consists of an MFA150 Distribution Unit that supports the following:

- 16 circuit breakers
- miscellaneous auxiliary circuit fuses
- a volt/ammeter
- control circuit
- two power shelves with six 25 A rectifiers

The NT5C90EG mounts in a 4-foot relay rack. It is essentially a base 150 A MFA 150 power system without the rectifiers and alarm cable.

NT6D40BA PE Power Supply DC

Converts –48 V DC to +5 V, +8.5 V, ±10 V, ±15 V, and –48 V DC voltages used to power peripheral equipment circuit cards and to supply talk battery to lines and trunks.

NT6D41 Power Supply DC

Converts –48 V DC to +5 V and ±12 V DC to provide required voltages for CPU, network, and Meridian Mail equipment.

The NT6D41 comes in two vintages:

- NT6D41BA for Network Modules
- NT6D41CA for Core/Network Modules

NT6D42CD Ringing Generator DC

A 16-ringer ringing generator. Operates from a nominal –52 V DC input and provides selectable AC ringing voltage outputs superimposed on –52 V DC. Frequency and voltage options are 20/25/50 Hz and 70/75/80/86 V AC. Supplies –120 or –150 V DC Message Waiting lamp voltages for analog (500/2500-type) telephones.

NT6D53 Junction Box

Provides an interim connection between the Candeo rectifier and the field wiring terminal block in the Large System pedestal. One junction box supports one column. The junction box can be used with the NT4N49AA PDU, but it is not required.

NT6D5303 Ground Window

Logic Return Equalizer (LRE) used on Large Systems. Equipped with 48 terminations

NT6D5304 Ground Window

Logic Return Equalizer (LRE) used on Large Systems. Equipped with nine terminations. Commonly used on AC-powered systems with more than one column.

NT7D0902 Rear-mount Conduit Kit

Enables conduit to enter the pedestal from the rear of the column.

NT8D06AB PE Power Supply AC

Converts 208/240 V AC to +5 V, +8.5 V, ±10 V, ±15 V, and –48 V DC voltages used to power peripheral equipment logic cards and to supply talk battery to lines and trunks.

NT8D21AB Ringing Generator AC

Operates from a nominal 208/240 V AC input and provides selectable AC ringing voltage outputs superimposed on –48 V DC. Frequency and voltage options are 20/25/50 Hz and 70/80/86 V AC. Supplies –150 V DC Message Waiting lamp voltages for analog (500/2500-type) telephones.

NT8D22AD System Monitor

Monitors the status of all internal power and cooling-related components, as well as external DC rectifiers, batteries, and uninterruptible power supplies (UPS).

The system monitor that handles the communication with the CPU (via the SDI port) is the master; all others function as slaves. There is a serial communication link between the master and the slaves.

In addition to CPU status reporting, the system monitor controls all external visual status indications.

NT8D29BA CE Power Supply AC

Converts 208/240 V AC to +5 V and ±12 V DC to provide required voltages for CPU, network, and Meridian Mail equipment.

NT8D46AC Thermostat Harness

Part of the temperature sensor assembly. Contains two thermal sensors and a fault LED. At 70 ^{o}C C (158 ^{o}F), the thermal sensors open and notify the system monitor, which shuts down the system. The harness plugs into the backplane of the top module.

NT8D46AM Air Probe Harness AC

Part of the temperature sensor assembly. Senses exit air temperature and relates the information to the blower unit.

NT8D46DC Air Probe Harness DC

Part of the temperature sensor assembly. Senses exit air temperature and relates the information to the blower unit.

NT8D52AB Pedestal Blower Unit AC

Provides forced-convection cooling. Contains two backward-curved cylindrically shaped impellers (rotor blades) that are approximately 22.8 cm (9 in.) in diameter and 6.9 cm (2.75 in.) thick. Each unit weighs about 1.5 kg (3.5 lb).

Communicates with the power distribution system through a connector on the rear of the PDU. A circuit breaker on the front of the blower chassis turns the unit on and off.

NT8D52DD Pedestal Blower Unit DC

Provides forced-convection cooling. Contains two backward-curved cylindrically shaped impellers (rotor blades) that are approximately 22.8 cm (9 in.) in diameter and 6.9 cm (2.75 in.) thick. Each unit weighs about 1.5 kg (3.5 lb).

Communicates with the power distribution system through a connector on the rear of the PDU. A switch on the front of the blower chassis turns the unit on and off. There is also a dedicated circuit breaker on the PDU.

NT8D53CA Power Distribution Unit AC

Distributes power to the entire column. Houses the main circuit breaker for the system.

NT8D56AA CE Module Power Distribution Unit

Protects the power supply and distributes power within a module. Houses a single breaker used with the NT8D29 CE Power Supply AC. One NT8D56AA is required for each AC CE Module.

NT8D57AA PE Module Power Distribution Unit

Protects the power supply and distributes the power within a module. One NT8D57 is required for each AC IPE module.

Equipment: NTAA000 – NTZZ999

NTAK28AB Junction Box

Connects customer-supplied battery backup units to a DC-powered NTAK11 Cabinet using the NTAK0420 DC Power Cable.

NTAK75AC Battery Back-up Unit

Provides two to four hours of reserve DC power for AC-powered NTAK11 Cabinets.

NTAK76AC Battery Back-up Unit

Provides 15 to 30 minutes of reserve DC power for AC-powered NTAK11 Cabinets.

NTBK80BA Grounding Block

The NTBK80BA provides a single point ground when more than one NTAK11 Cabinet is installed in the same room. It can also be called a miniature Logic Return Equalizer (LRE) for Cabinet systems.

This unit supports up to five cabinets, and is not required if there is only one cabinet in the room.

NTDK70 AC/DC Global Power Supply

Power Supply used in all Cabinet systems. Converts 110 V AC to -52 V, -48 V, ±15 V and ±5 V DC voltages to power all the various cards in the NTAK11 Cabinet.

NTDK72AB DC/DC Power Supply

Power Supply used in all Cabinet systems when the cabinet is powered by a -52 V DC source such as a Small NTWB16 Candeo Power System. Converts 110 V AC to -52 V, -48 V, ±15 V and ±5 V DC voltages to power all the various cards in the NTAK11 Cabinet.

NTDK78AB AC/DC Power Supply

Power Supply used in Small Systems in all markets except Europe, the Middle East, and Asia (EMEA).

NTTK41AA EMC Grounding Clip

Reroutes the cables between main cabinets and chassis connected with 100BaseT connectivity. This ensures electrical contact between the ground rail and 100BaseT cable for EMC containment.

The NTTK41AA is used on the expansion NTAK11 Cabinet. It is included in the NTDK49 Option 11C 100BaseT IP Expansion Kit.

NTTK43AA EMC Mini Grounding Clip

Reroutes the cables between main cabinets and chassis connected with 100BaseT connectivity. This ensures electrical contact between the ground rail and 100BaseT cable for EMC containment.

The NTDK43AA is used on the NTDK91 Chassis and NTDK92 Chassis Expander. It is included in the NTDK49 Option 11C 100BaseT IP Expansion Kit.

NTWB16 Candeo Power System

The Candeo platform provides a simple, quick to deploy, and easy to operate power solution for Large Systems. Based upon modular building blocks (rectifiers, Controller or System Manager, DC distribution, and battery connection modules), the system is designed to power -48 V DC applications. The Candeo platform can be expanded by adding rectifiers, battery connection modules, frames, and distribution modules.

There are two types of Candeo systems, with the following vintages:

- Large Candeo, which uses 50 A rectifiers and has a capacity of 1000 A. The Large Candeo comes in two vintages:
  - — NTWB16AA — mounted in an 84 in. high relay rack
  - — NTWB16BA — mounted in a 42 in. high relay rack
- Small Candeo (SP48300), which uses 30 A rectifiers and has a capacity of 300 A. The Small Candeo comes in two vintages:
  - — NTWB16CA — mounted in a 51 in. high relay rack
  - — NTWB16DA — mounted in an 84 in. high relay rack

Both Large and Small Candeo systems provide “plug and walk-away” installation and setup. The platform can be reconfigured or expanded while it remains online.

In a single frame configuration, a Candeo system can power a complete range of medium-sized applications.

- *Large Candeo* (vintages AA and BA): Built around the shelfless Candeo Rectifier 50/48, this system operates from any voltage between 80 V AC to 300 V AC (single phase). When configured with 50 A Candeo rectifiers, the system delivers up to 500 A from a single 42-inch (1050 mm) frame and up to 1000 A from a single 84-inch (2100 mm) frame.
- *Small Candeo* (vintages CA and DA): Built around the Candeo Rectifier 30/48, this system operates from any voltage between 75 V AC to 310 V AC (single phase). When configured with 30 A Candeo rectifiers, the system delivers up to 150 A from a single rectifier shelf and up to 300 A from a system equipped with a supplementary rectifier shelf.

The 84 in. Large Candeo Power System package (vintage AA) contains the following items:

• 1 84 in. Main Frame Assembly, consisting of:	B0262296
— 1 84 in. high frame	A0793179
— 1 1200 A Backbone Full Height	A0793173
— 1 Distribution 500	A0793168
— 1 Battery Connection Kit	P0987666
— 10 30 A Breakers	A0722715
— 10 Single Position Load Clips	P0914477
— 1 800 A LVD Contactor Kit	P0913620
— 1 Temperature Probe Kit (8 m)	P0820974
• 2 50 A Rectifier Kits	B0262270
• 1 System Manager	B0262297
• 1 Conduit Connection Box Kit, consisting of:	A0514272
— 1 Conduit Connection Box	P7000075
— 1 GMT Fuse Block	A0810033
— 1 Screw Kit	B0093696
— 7 Load Clips	P0914477
• 1 Alarm Cable (32 ft.)	NT8D46AV
• Candeo to Meridian 1 Installation Guide	P0603928

The 42 in. Large Candeo Power System package (vintage BA) contains the following items:

- 1 42 in. Main Frame Assembly, consisting of: B0262261
  - 1 42 in. high frame A0828997
  - 1 500 A Backbone Full Height A0882299
  - 1 Distribution 500 A0793168
  - 1 Battery Connection Kit P0987666
  - 10 30 A Breakers A0722715
  - 10 Single Position Load Clips P0914477
  - 1 800 A LVD Contactor Kit P0913620
  - 1 Temperature Probe Kit (8 m) P0820974
- 2 50 A Rectifier Kits B0262270
- 1 System Manager B0262297
- 1 Conduit Connection Box Kit, consisting of: A0514272
  - 1 Conduit Connection Box P7000075
  - 1 GMT Fuse Block A0810033
  - 1 Screw Kit B0093696
  - 7 Load Clips P0914477
- 1 Alarm Cable (32 ft.) NT8D46AV
- Candeo to Meridian 1 Installation Guide P0603928

The Small Candeo Power System package (vintages AC and AD) contains the following items:

- 1 Candeo System Manager SP Controller A0555098
- 1 30/48 Rectifier A0522819
- 1 165/48 Power Shelf A0555313
- 1 Main Distribution Panel A0555227
- 1 Relay Rack
  - 51 in. high (for NTWB16CA) A0502125
  - 84 in. high (for NTWB16DA) A0793179
- 1 Frame Isolation Kit P0937358
- 1 Conduit Box A0555307
- 1 Mounting Bracket (12 in.) A0555313
- 1 Temperature Sensor A0545236

- 1 Alarm Cable (32 ft.) NT8D46AV
- 8 30 A Mid-Trip Breaker Kits P0941244
- 4 Blank Panels A0555311
- 1 10-position Fuse Block A0810033
- 4 1 A GMT Fuses A0888685
- 1 Top Cover Kit (for Distribution Unit) A0555309
- 1 Rear Cover Kit (for Distribution Unit) A0555310
- User Manual P7000154
- Installation Manual P7000289

The Small Candeo Power System is expandable using the following available major expansion components:

- 30/48 Rectifier A0522819
- Supplementary Power Shelf A0555288
- Supplementary Distribution Panel A0555376
- SBS 60 VRLA Battery Module A0669283
- Battery Enclosure N0003344

For more information on the Candeo power systems, refer to:

- *Communication Server 1000M and Meridian 1: Large System Planning and Engineering* (553-3021-120)
- *Communication Server 1000M and Meridian 1: Large System Installation and Configuration* (553-3021-210)

Equipment: QAA000 – QZZ9999

QUA6A Power Failure Transfer Unit (PFTU)

Transfers trunk lines during a power or system failure. This PFTU contains five circuits that convert Loop Start Trunks to Ground Start Trunks. In addition, if the telephone is already off-hook, and there is an emergency transfer, the telephone will not be disconnected or the call will be lost.

Equipment: P0000000 – P9999999

P0729843 MFA150 5 A Circuit Breaker Kit

Provides protection of up to 5 A for miscellaneous circuits that are supported by the MFA150 Power System

P0729846 MFA150 20 A Circuit Breaker Kit

Provides protection of up to 20 A for miscellaneous circuits that are supported by the MFA150 Power System

P0729847 MFA150 30 A Breaker

Required to interface the MFA150 Distribution Unit to the DC Pedestal. Usually, two 30 A feeds are required for each Pedestal, to support up to four Meridian 1 modules.

Common equipment cards

Contents

This section contains information on the following topics:

Introduction

This chapter identifies common equipment cards supported for use in Meridian 1 and CS 1000 systems.

Equipment: A0000000 – A9999999

A0634492 Single-mode (Redundant) Fiber Remote Multi-IPE

Provides Large System functionality to Remote IPE through a fiber-optic span, using the redundant option.

A0634493 Multi-mode (Redundant) Fiber Remote Multi-IPE

Provides Large System functionality to Remote IPE through a fiber-optic span, using the redundant option.

A0773054 Multi-mode (1-4 superloops) Fiber Remote Multi-IPE

Provides Large System functionality to Remote IPE through a fiber-optic span, transmitting 1-4 superloops over a single fiber span.

A0773055 Multi-mode (1-2 superloops) Fiber Remote Multi-IPE

Provides Large System functionality to Remote IPE through a fiber-optic span, transmitting 1-2 superloops over a single fiber span.

A0773056 Single-mode (1-4 superloops) Fiber Remote Multi-IPE

Provides Large System functionality to Remote IPE through a fiber-optic span, transmitting 1-4 superloops over a single fiber span.

A0773059 Single-mode (1-2 superloops) Fiber Remote Multi-IPE

Provides Large System functionality to Remote IPE through a fiber-optic span, transmitting 1-2 superloops over a single fiber span.

Equipment: NT1A000 – NT9Z999

NT1P61CA Fiber Superloop Network Card

Provides 120-timeslot (one superloop) interface between network and intelligent peripheral equipment. Utilizes the equivalent of four network loops. Can be connected to one NT1P62 Fiber Peripheral Controller card.

The superloop network card is equipped with a Motorola 68000-type microprocessor that performs network diagnostics and signaling control, and communicates with the intelligent peripheral controller over a fiber-optic span.

This card is used only on Fibre Remote Large Systems.

NT1P63CA Fiber Electro-optical Interface Packlet

Provides a synchronous 155.52 MByte/s, point-to-point transmission facility between the Fiber Superloop Network card microprocessor unit (MPU) and the Fiber Peripheral Controller card MPU.

NT4N19AA CP PII Memory Upgrade Kit

Upgrades memory on a CP PII Call Processor card from 128 Mbytes to 256 Mbytes.

NT4N43CA cPCI® Multi-Media Disk Drive Unit (MMDU)

Contains the drives that store system software and databases. The MMDU card includes:

- a hard disk to store the system database and software
- a floppy disk to install software or back up databases
- a CD-ROM to install system software

NT4N48AA cPCI® System Utility (Sys Util)

Incorporates the functionality of the System Utility Transition card, LCD display, and the security device holder.

NT4N64AA Call Processor Pentium II® (CP PII)

Contains a Pentium II processor to process calls, manage the 256 MByte memory, and monitor the system. It also provides serial and Ethernet interfaces to manage the system. It is recommended for systems with six or more network groups.

NT4N65AC cPCI® Core to Network Interface (cCNI)

Connects the Core Module cards to the 3PE cards in the Network Modules.

Since each cCNI card can connect to two Network groups, each Core connects to a minimum of two groups and a maximum of eight groups. The

number of cCNI cards in a system depends on the number of Network groups in that system.

The first cCNI card that connects to Network group 0 and group 1 is installed in slot c9 of each Core/Net Module. Each additional cCNI card is installed in ascending order from slots c10 to c12.

NT4N66AB cPCI® Core to Network Interface Transition (cCNI Trans)

Provides the cable connections to the 3PE Termination Panel in the rear of the module.

A cCNI Transition card is mounted directly behind each cCNI card (on the back side of the Core backplane). Four cCNI Transition cards are installed in the factory regardless of how many cCNI main cards are configured for the system.

NT5D03 CP4 Call Processor Card (CP4)

A 32-bit Motorola 68LC060, 66 MHz microprocessor. The NT5D03 CP card delivers a real-time capability improvement to the NT5D10 CP card. The NT5D03 card performs the following main functions:

- Executes all call processing software at a higher clock rate than the NT5D10 CP card.
- Interfaces with the interprocessor bus (IPB) over the backplane for communication with other cards on the IPB, using the Bus Interface Circuit (BIC) for communication with the IPB.
- Provides on-board main memory and cache memory.
- Provides a system time-of-day clock/calendar.
- Provides a pair of serial data ports for maintenance and administration.

  Note: Cabling the Call Processor cards together allows memory shadowing and dual-CPU operation.

The CP card is available in the following memory configurations:

- NT5D03FB – 128 MByte memory
- NT5D03PB – 160 MByte memory

NT5D10 68060 Call Processor Card (CP3)

A 32-bit Motorola 68LC060, 66 MHz microprocessor. The Call Processor card performs the following functions:

- Executes all call processing software
- Interfaces with the interprocessor bus over the backplane for communication with other cards on the IPB, using the Bus Interface Circuit (BIC) for communication with the IPB
- Provides on-board main memory and cache memory
- Provides a system time-of-day clock/calendar
- Provides a pair of serial data ports for maintenance and administration

  Note: Cabling the Call Processor cards together allows memory shadowing and dual-CPU operation.

The CP card is available in the following memory configurations:

- NT5D10CA – 64 MByte memory
- NT5D10EA – 80 MByte memory

NT5D12AH Dual DTI/PRI (DDP) Card

Provides two DTI/PRI network connections, an optional connection to an external D-Channel Handler (NT6D80 MSDL), and an optional plug-on D-Channel Daughterboard (DDCH, NTBK51AA).

The NT5D12 occupies a single Network shelf slot. It provides an interface to the 1.5 Mbit/s external digital line, either directly or through an office repeater, Line Terminating Unit (LTU), or Channel Service Unit (CSU).

NT5D30AA PC Dual Intergroup Switch Card (DIGS)

Interfaces Network or Core/Network Modules with Intergroup Switch Module (NT8D36). One DIGS card is required for each Network or Core/ Network Module.

NT5D61AB Input/Output Disk Unit with CD-ROM (IODU/C)

Used to load programs and office data into the system memory. IODU/C uses an industry-standard, 2 MByte floppy drive instead of a 4 MByte floppy drive. Additionally, the NT5D61 IODU/C has a CD-ROM drive accessed on the faceplate, to facilitate loading system software from a CD-ROM.

A Security Device attached to the IODU/C and an electronic keycode file performs validation of the customers' specific features and software release. The Security Device is a removable component to allow the replacement of an IODU/C without the need to order a new Security Device.

The IODU/C also contains:

- I/O processor circuitry
- one 2 MByte 3.5-inch high-density floppy drive with a formatted capacity of 1.44 MBytes
- one 3.5-inch hard disk drive with a minimum capacity of 120 MByte

The IODU/C occupies slots 17, 18, and 19 in the NT5D21 Core/Network Module, and requires 5 V and 12 V from the module.

The IODU/C supports Card-ID, which includes the card type, NT code, serial number, and any other relevant data for the IODU/C.

NT5D64CB Local Mini-Carrier Interface Card

Located at the local site in a Mini-Carrier Remote (MCR) system, the Local Mini-Carrier Interface (LMI) card emulates two standard IPE line cards. The LMI can interface to the remote site through either one or two T1 carrier links. Up to three NT5D65 Local Mini Carrier Extender cards can be added to an LMI to increase the number of telephones serviced at the remote site.

The NT5D64 is used only in Large Systems.

NT5D65CB Local Mini-Carrier Extender Card

Located at the local site in a Mini-Carrier Remote (MCR) system, the Local Mini-Carrier Interface (LMX) card emulates two additional IPE line cards. Up to two LMX cards can be added to an NT5D64 Local Mini-Carrier Interface Card to increase the number of telephones serviced at the remote site.

The NT5D65 is used only in Large Systems.

NT5D67CB Remote Mini-Carrier Interface Card

Located at the remote site in a Mini-Carrier Remote (MCR) system, the Remote Mini-Carrier Interface (RMI) card provides the interface between the NT5D64 Local Mini-Carrier Interface Card at the local site and the line cards at the remote site. The switch and line cards function as if the line cards were plugged into the local IPE Module.

NT5D68CB Local Mini-Carrier Interface Card

Located at the local site in a Mini-Carrier Remote (MCR) system, the Local Mini-Carrier Interface (LMI) card emulates two standard IPE line cards. The LMI can interface to the remote site through either one or two T1 carrier links. Up to two NT5D69 Local Mini Carrier Extender cards can be added to an LMI to increase the number of telephones serviced at the remote site.

The NT5D68 is used only in Small Systems.

NT5D69CB Local Mini-Carrier Extender Card

Located at the local site in a Mini-Carrier Remote (MCR) system, the Local Mini-Carrier Interface (LMX) card emulates two additional IPE line cards. Up to two LMX cards can be added to an NT5D69 Local Mini-Carrier Interface Card to increase the number of telephones serviced at the remote site.

The NT5D69CA is used only in Small Systems.

NT6D73AA Multipurpose ISDN Signaling Processor (MISP)

A microprocessor-controlled signaling processor that provides a communication interface between the CPU and peripheral devices. The MISP card interfaces with S/T Interface Line Cards (SILC) and U Interface Line Cards (UILC).

The main functions of the MISP are to:

- Communicate with the CPU to report ISDN BRI status and receive downloaded application software and configuration parameters.
- Manage data link layer and network layer signaling that controls call connection and terminal identification.
- Control terminal initialization and addressing.
- Assign B-channels for switched voice and data transmission by communicating with the BRI terminal over the D-channel and allocating to it an idle B-channel with appropriate bearer capabilities.
- Separate D-channel data from signaling information and route the data to the packet handler.
- Send call control messages to ISDN BRI terminals over the D-channel.

The MISP occupies one slot in the Network Module. It uses one of the network loops to interface with SILCs and UILCs and to provide 32 timeslots for D-channel signaling and packet data transmission. The other loop address is used to communicate with the CPU.

NT6D80AC Multipurpose Serial Data Link Card (MSDL)

Provides the signaling interface for primary rate interface (PRI) D-channels or application module link (AML) applications. It utilizes four full-duplex serial I/O ports that are independently configured. The MSDL card can coexist with other cards that support the same functions.

> ***Note:*** This card currently does not support asynchronous mode. Therefore, the realistic maximum number of MSDL cards is 14. This leaves two SDI port addresses for communication with the system via a terminal.

NT7R51AD Local Carrier Interface Card

Provides 120-timeslot (one superloop) interface between network and intelligent peripheral equipment. Utilizes the equivalent of four network loops.

The Superloop Network card is equipped with a Motorola 68000-type microprocessor that performs network diagnostics and signaling control, and communicates with the Intelligent Peripheral Controller over a T1 or E1 carrier span.

This card is used only on Carrier Remote products.

NT8D04BA Superloop Network Card

Provides 120-timeslot (one superloop) interface between network and intelligent peripheral equipment. Also provides up to 3500 CCS traffic capacity. Utilizes the equivalent of four network loops. Can be connected to one or two NT8D01 Controller Cards.

The Superloop Network card is equipped with a Motorola 68000-type microprocessor that performs network diagnostics and signaling control, and communicates with the Intelligent Peripheral Controller.

NT8D17HB Conference/TDS Card

Provides both conference, and tone and digit switch (TDS) functions. Accesses two network loops, one for each function.

The conference circuitry has a warning tone option and supports broadcast mode. Up to 15 simultaneous conferences can be controlled with the restriction that the total number of conferees in all conferences is not greater than 30. The TDS circuitry provides tones for different countries (up to 256 tones and cadences).

Multifrequency signaling (MFS) provides Automatic Number Identification (ANI) digits over Centralized Automatic Message Accounting (CAMA) trunks to a toll switching CAMA, Traffic Operator Positioning System (TOPS), or Traffic Service Positioning System (TSPS) office.

NT8D41BB Quad Density Serial Data Interface

Provides four serial ports between the processor and an external device. Each port supports:

- RS-232-C interface
- 8-bit ASCII data, no parity and 1 stop bit
- asynchronous, start-stop operation
- data rates of 150, 300, 600, 1200, 2400, 4800, 9600, and 19200 baud
- DTE mode
- DCE mode

Equipment: NTAA000 – NTZZ999

NTAK02BD SDI/SDH Card

Provides four SDI ports for various applications over and above those provided on the NTDK20 SSC card.

NTAK09 1.5Mb DTI/PRI Card

Provides 1.5 Mb ISDN PRI and DTI capability.

The NTAK09 supports the following daughterboards:

- NTAK20 Clock Controller
- NTAK93 D-Channel Handler Interface
- NTBK51BA Downloadable D-Channel Handler Card

NTAK10DC 2.0 Mb DTI Card

Provides an IPE-compatible 2.0 Mb DTI interface.

NTAK20 Clock Controller Daughterboard

Synchronizes the network to an external source clock, and generates and distributes clocking functionality.

The NTAK20 mounts directly on the following cards:

- NTAK09 1.5 Mb DTI/PRI card
- NTBK22 MISP card
- NTBK50 2.0 Mb PRI card
- NTRB21 DTI/PRI/DCH TMDI card

The NTAK20 is available in the following versions:

- NTAK20AD 3-clock controller
- NTAK20BD 4-clock controller

NTAK93AB D-Channel Handler Interface (DCHI) Daughterboard

Provides D-channel handler interfaces required by the ISDN PRI trunk. It performs D-channel layer 2 message processing and layer 3 preprocessing.

The NTAK39 mounts on the following cards:

- NTAK09 1.5 Mb DTI/PRI card
- NTBK50 2.0 Mb PRI card

NTBK22AA Multi-purpose ISDN Signaling Processor (MISP) Card

Performs Data Link (Layer 2) and Network (Layer 3) processing associated with ISDN BRI and the OSI protocol. It is mounted in the main NTAK11 Cabinet.

The NTBK22 supports the NTAK20 Clock Controller daughterboard.

NTBK50AA 2.0 Mb PRI Card

Provides 2.0 Mb ISDN PRI and DTI capability. It is mounted in the main and expansion NTAK11 Cabinets.

The NTBK50 supports the following daughterboards:

- NTAK20 Clock Controller
- NTAK93 D-Channel Handler Interface
- NTBK51BA Downloadable D-Channel Handler Card

NTBK51 Downloadable D-Channel Handler (DDCH) Card

Provides downloadable D-channel handler interfaces based on the Multipurpose Serial Data Link. The DDCH card provides a single purpose full-duplex serial port capable of downloading the D-channel application and base software into the card.

The NTBK 51 mounts on the following cards:

- NTAK09 1.5 Mb DTI/PRI card
- NTBK50 2.0 Mb PRI card

NTDK19BA Small System Controller Upgrade Kit

Upgrades the NTDK20GA Small System Controller (SSC) Card to 32 MB.

NTDK20 Small System Controller (SSC) Card

Contains a Central Processor Unit (CPU) that handles call processing, an Ethernet controller, and system memory. It has a PC card interface for software upgrades or creating external backups.

The NTDK20 SSC supports the following daughterboards and security devices:

- NTM400 or NTTK25 Software Daughterboard – mandatory
- NTDK83 dual port 100BaseT
- NTTK02 dual port 100BaseF

- NTDK99 single port 100BaseT
- NTTK01 single port 100BaseF
- NTDK84 Dual Port Fiber Expansion
- NTDK22 Single Port Fiber Expansion
- NTDK23 Fiber Receiver
- NTAK02 SDI/DCH card
- NT5K48 Tone Detector cards
- security devices:
  - NTDK57AA (NT_STD on the dongle) in the main NTAK11 Cabinet
  - NTDK57DA (NT_REM on the dongle) in each expansion NTAK11 Cabinet

Vintages:

- NTDK20GA - requires NTDK19BA for CS 1000 Release 4.0
- NTDK20HA

NTDK97AD Mini System Controller (MSC) Card

Controls call processing and stores system and customer data. It is housed in the NTDK91 Chassis, when a single NTDK92 Chassis Expander is used.

The NTDK97 does not require a separate daughterboard. It supports the NTDK57 security devices.

NTM400 Software Daughterboard

Required for the NTDK20 SSC card to function.

NTRB21AC 1.5 Mbit DTI/PRI/DCH TMDI Card

Required to implement PRI on cabinet systems. It provides 1.5 Mbits Digital Trunk Interface or Primary Rate Interface functionality.

The NTRB21 replaces the NTAK09 1.5 Mb DTI/PRI Card.

The NTRB21 supports the NTAK20 Clock Controller daughterboard.

NTRB33AD Fiber Junctor Interface (FIJI) Card

Used for the Fiber Network feature. FIJI cards are installed in Network Modules and connect with fiber-optic cables to form a Dual Ring Fiber Network. This network replaces the Intergroup Module and consists of two separate rings – one ring connects all of the Network Shelf 0's while the second ring connects all of the Network Shelf 1's. This network communicates on a subset of the Sonet OC-12c protocol (22 Mb bandwidth on each ring).

The Dual Ring fiber-optic cable configuration provides complete non-blocking communication between the network groups; this eliminates the occurrence of busy signals for calls switched between groups. Each FIJI card can handle 32 pulse code modulation (PCM) links. A system of eight Network groups provides 7680 timeslots for 3840 simultaneous conversations.

NTRB34AB Core to Network Interface 3 Card (CNI-3)

Provides the interface between the interprocessor bus and the network shelves, and between the Call Processor card and QPC441 3PE Cards in the network shelf. Each CNI-3 card provides two ports (you are not required to use both ports).

CNI-3 cards are used in the NT5D21 Core/Network Module.

NTRB53 Downloadable Clock Controller Card

Used in CS 1000M MG, Meridian 1 Option 81C/Meridian 1 PBX 81C systems to synchronize the network to an external source clock, and to generate and distribute clocking to the Large System. Also used with PRI and DTI in all Large Systems. In CS 1000M HG and Meridian 1 Option 51C/ Meridian 1 PBX 51C systems, the NTRB53 is used only when equipped with PRI or DTI. Unlike its predecessors, the QPC471 and QPC775 Clock Controllers, the NTRB53 allows field upgrades of the clock's firmware.

The NTRB53 replaces the QPC471 and QPC775 Clock Controllers. The NTRB53 cannot be combined with a QPC471 or QPC775 card in a system.

NTRE39AA Optical Cable Management Card (OCMC)

Installed in Network Modules to store and protect excess cable length. The OCMC ensures that the fiber cable is not bent beyond a 30 mm bend radius.

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

OCMC is a single width card installed between the Power Supply and slot 1 of a Core/Network Module.

NTTK25AA Software Daughterboard

Required for the NTDK20 to function. The NTTK25 provides 48 MBytes of storage for system and customer data. It can be ordered preprogrammed with system software and customer data.

Equipment: QAA000 – QZZ999

QPC43R Peripheral Signaling Card

Provides a signaling interface between the CPU and PE through the network cards. Provides basic bit rate 2.048 MHz clock and timing signals for real-time functions.

QPC414C Network Card

Provides 30 traffic timeslots for every network loop. Provides speech path switching, signaling, and control circuits for two network loops. Interfaces between network and Meridian Mail modules, and PRI and DTI cards.

QPC441F 3-Port Extender (3PE) Card

Extends CPU data, address, and control signals to network loops.

Note: Port 0 on the 3PE card in each Core/Network Module extends the interprocessor bus to the interface section on the backplane, not to a network loop.

Peripheral equipment cards

Contents

This section contains information on the following topics:

Introduction

This chapter identifies peripheral equipment cards supported for use in Meridian 1 and CS 1000 systems.

For additional information on circuit cards, refer to *Circuit Card: Description and Installation* (553-3001-211).

Equipment: NT1A000 – NT9Z999

NT1P62EA Fiber Peripheral Controller Card

Provides a primary interface and control function between the NT1P61 Fiber Superloop Network Card in the system and the IPE Module at the Fiber Remote IPE site. Each controller card serves up to 16 IPE cards. The controller card is equipped with a Motorola 68000-type microprocessor that performs some local call processing and maintenance diagnostics.

NT1R20BA Off-premises Station (OPS) Analog Line Card

Provides eight full-duplex interfaces to connect off-premises terminals to the main system. Each interface provides lightning protectors for external line connection to the station.

The NT1R20BA provides:

- line supervision
- hookflash
- battery reversal

The NT1R20BA is not used in China.

NT5D11AE Line-side T1 Line Card

An intelligent IPE line card that provides an all-digital connection between T1-compatible terminal equipment. Supports supervisory features and has access to 2500-type functionality. Use only on terminal equipment that has a T1 interface and line side feature capability.

NT5D14AD Line-side T1 Line Card

Interfaces one T-1 line, carrying 24 channels to the cabinet system. It emulates an analog line card. It occupies two card slots in the main or expansion NTAK11 Cabinets.

NT5D15AA Extended Universal Trunk Card (Japan)

The NT5D15AA comes with Busy Tone Detection.

The NT5D15AA is used in Japan.

NT5D26AA Extended Universal Trunk Card

The NT5D26 comes in three versions:

- NT5D26AA — 400 Hz EXUTAP-1 used in Thailand

- NT5D26BA — 425 Hz EXUTAP-2 used in Indonesia, Malaysia, and Singapore
- NT5D26CA — EXUT-B used in Brazil

NT5D28AA Extended Direct Inward Dial (DID) Card (India)

Provides the interface to up to eight analog DID trunk lines.

The NT5D28AA is used in India.

NT5D29AA Central Office Trunk Card (India)

Supports eight analog Central Office (CO) trunks, with Busy Tone Detection.

The NT5D29AA is used in India.

NT5D31AA Extended Universal Trunk Card

Provides interface to up to eight trunk facilities.

The NT8D31AA is used in Asia Pacific (APAC) and the Caribbean and Latin America (CALA).

NT5D33AB Line-side E1 Line Card

Interfaces one E-1 line, carrying 30 channels to the Large System.

The NT5D33AB is not used in North America.

NT5D34AB Line-side E1 Line Card

Interfaces one E-1 line, carrying 30 channels to the Small System.

The NT5D34AB is not used in North America.

NT5D39AA Extended Universal Trunk Card (Japan)

Provides interface to up to eight trunk facilities.

The NT8D39AA is used in Japan.

NT5D49AA Analog Message Waiting Line Card (Brazil)

The NT5D49AA is used in Brazil.

NT5D51BC Nortel Networks Integrated Conference Bridge Card

The Nortel Networks Integrated Conference Bridge card provides up to 32 ports supporting bridge and conference scheduling for up to ten simultaneous conferences. For a single Integrated Conference Bridge card with 32 ports, there can be one conference with a maximum of 32 participants; a maximum of ten simultaneous conferences with three or four participants in each conference; or any combination in between.

The Integrated Conference Bridge supports one chairperson per conference. The chairperson can execute commands to control conference activities such as:

- dialing out to a new party outside of the conference
- dropping all participants
- locking or unlocking the conference to prevent or allow new participants in the conference

The Integrated Conference Bridge card provides the following four interfaces:

- A browser user interface (BUI) is used for scheduling and managing conferences. The user accesses the BUI through a web browser.
- A Microsoft® Outlook® user interface is used for scheduling and managing conferences. The user accesses this interface through their Microsoft Outlook Calendar. This interface is seamlessly integrated into the Microsoft Outlook calendar and e-mail facility, so that meetings are automatically entered in the Microsoft Outlook calendar of each participant.

- A telephone user interface (TUI) is also used for scheduling and managing conferences. The user accesses the TUI through any dual-tone multifrequency (DTMF) telephone.
- A command line interface (CLI) is used for performing certain administrative and maintenance functions. The user accesses the CLI through a VT-100 terminal that is connected directly to the card, or through a terminal-emulating PC that is connected to the customer's LAN.

Two Integrated Conference Bridge cards can be linked in a dual-card configuration to allow up to 64 participants, as follows:

- If no dual-card conference is scheduled, 64 ports are available for participants (maximum of 32 participants in a single conference).
- If a dual-card conference is scheduled without a chairperson, 62 ports are available for participants.
- If a dual-card conference is scheduled with a chairperson, 60 ports are available for participants.

The following port packages are available for the single-card configuration:

- NTZB01AC 12 ports
- NTZB01BC 16 ports
- NTZB01CC 24 ports
- NTZB01DC 32 ports

The following port and expansion packages are available for the dual-card configuration:

- NTZB94AC 42 ports
- NTZB94BC 50 ports
- NTZB94CC 62 ports

The following expansion packages are also available:

- NTZB02AC 12- to 16-port expansion
- NTZB02BC 12- to 24-port expansion

- NTZB02CC 12- to 32-port expansion
- NTZB02DC 16- to 24-port expansion
- NTZB02EC 16- to 32-port expansion
- NTZB02FC 24- to 32-port expansion
- NTZB95AC 12- to 42-port expansion
- NTZB95BC 12- to 50-port expansion
- NTZB95CC 12- to 62-port expansion
- NTZB95DC 16- to 42-port expansion
- NTZB95EC 16- to 50-port expansion
- NTZB95FC 16- to 62-port expansion
- NTZB95GC 24- to 42-port expansion
- NTZB95HC 24- to 50-port expansion
- NTZB95JC 24- to 62-port expansion
- NTZB95KC 32- to 42-port expansion
- NTZB95LC 32- to 50-port expansion
- NTZB95MC 32- to 62-port expansion
- NTZB95NC 42- to 50-port expansion
- NTZB95PC 42- to 62-port expansion
- NTZB95QC 50- to 62-port expansion

For more information on the NT5D51 Integrated Conference Bridge card, see *Integrated Conference Bridge: Service Implementation Guide* (553-3001-358).

NT5D60AA CLASS Modem Card (XCMC)

Supports the Custom Local Area Signaling Services (CLASS) feature. The CLASS Modem card receives Calling Number and Calling Name Delivery (CND) data and time/date data from an NT8D01 Controller card and transmits it to a line port, such as a port on an Analog Line card. The line port

delivers the CND data to a CLASS telephone set when presenting the set with a new call.

The CLASS Modem card is designed to plug into any one of the peripheral card slots of the IPE Module. It supports up to 32 transmit-only modem resources using a DS30X interface. Up to 255 modems may be configured per system.

The NT5D60 uses +5 V power supplied by the power converter in the IPE shelf.

For information about the CLASS: Calling Number and Name Delivery feature, see *Features and Services* (553-3001-306).

NT5D62GA Integrated Conference Bridge PC Card

PC Card for NT5D51 Integrated Conference Bridge Base Card.

NT5G11AA Nortel Networks Integrated Call Assistant Card

Provides Intelligent Peripheral Equipment (IPE) that automatically answers incoming calls. Based on caller input and other information, the NT5G11 routes callers to their desired destination. The NT5G11 can be configured in several ways, from basic, menu-driven call handling to complex Automatic Caller Distribution (ACD) applications.

NT5K02 Flexible Analog Line Card

Provides interface to up to 16 analog (500/2500-type) telephones equipped with either ground button recall switches, high-voltage Message Waiting lamps, or low-voltage Message Waiting LEDs. It performs several functions, some of which are:

- flexible transmission
- ground button operation
- low-voltage Message Waiting option
- card self-ID for auto-configuration

Applications:

- NT5K02AC — high-voltage Message Waiting, analog line card typically used in Australia (see description on page 73)
- NT5K02DB — ground button, low-voltage Message Waiting, analog line card typically used in France (see description on page 73)
- NT5K02EB — ground button, low-voltage Message Waiting, analog line card typically used in Austria, Finland, Germany, and Greece
- NT5K02FA — ground button, low-voltage Message Waiting, analog line card with 600¾ termination (A/D –4 dB, D/A –1 dB) typically used in Sweden
- NT5K02GA — same as NT5K02FA with a different loss plan (A/D –4 dB, D/A –3 dB) typically used in Sweden
- NT5K02HA — ground button, low-voltage Message Waiting, analog line card typically used in Belgium
- NT5K02JC — low-voltage Message Waiting, analog line card typically used in Denmark (see description on page 74)
- NT5K02KB — ground button, low-voltage Message Waiting, analog line card typically used in Holland, India, Ireland, and Portugal (see description on page 74)
- NT5K02LD — analog line card typically used in New Zealand (see description on page 75)
- NT5K02MC — ground button, low-voltage Message Waiting, analog line card typically used in Norway (see description on page 75)
- NT5K02NC — ground button, low-voltage message Waiting, analog line card typically used in Sweden (see description on page 76)
- NT5K02PC — ground button, low-voltage Message Waiting, analog line card typically used in Switzerland
- NT5K02QC — ground button, low-voltage Message Waiting, analog line card typically used in the United Kingdom

- NT5K02SB — ground button, low-voltage Message Waiting, analog line card typically used in Iceland and Turkey (see description on page 76)
- NT5K02TB — ground button, low-voltage Message Waiting, analog line card typically used in Spain

NT5K02AC Flexible Analog Line Card (Australia)

Provides an interface for up to 16 analog (500/2500-type) telephone lines. It provides the following features:

- direct reporting of digits dialed (500 sets) by collecting 10 and 20 pps dial pulses
- telephone on-hook and off-hook detection
- relay for connecting an AC ringer
- automatic disconnection when the telephone set goes on-hook
- flashing high-voltage 1 Hz Message Waiting signal

The NT5K02AC is used in Australia. It can be installed in any PE slot that supports Intelligent Peripheral Equipment (IPE).

NT5K02DB Flexible Analog Line Card (France)

Provides an interface for up to 16 analog (500/2500-type) telephone lines. It provides the following features:

- Message Waiting
- support of Digipulse or Digitone telephones
- telephone on-hook and off-hook detection based on loop current
- ground button detection
- relay for connecting an AC ringing signal
- collection of dial pulses (10 and 20 pps) from 500-type telephones
- analog to digital and digital to analog conversion for 16 analog telephone lines
- terminating impedance of French Complex Impedance

- software-selectable A-Law or μ-Law companding
- provision of limited line current to telephone sets on short loops and under fault conditions; otherwise, loop current varies to allow automatic gain compensation according to loop length

The NT5K02DB is used in France.

NT5K02JC Flexible Analog Line Card (Denmark)

Provides an interface for up to 16 analog (500/2500-type) telephone lines. It provides the following features:

- hookswitch flash detection
- ground button detection
- variable loop current to allow automatic gain compensation according to loop length
- a flashing low-voltage 1 Hz Message Waiting signal

The NT5K02JC is used in Denmark.

NT5K02KB Flexible Analog Line Card (Holland, India, Ireland, and Portugal)

Provides an interface for up to 16 analog (500/2500-type) telephone lines. It provides the following features:

- Message Waiting Indicator flashing at a rate of 1 Hz at the telephone set
- support of Digipulse or Digitone telephones
- telephone on-hook and off-hook detection based on loop current
- ground button detection
- relay for connecting an AC ringing signal
- collection of dial pulses (10 and 20 pps) from 500-type telephones
- analog-to-digital and digital-to-analog conversion for 16 analog telephone lines
- terminating impedance of 600 ohms

- software-selectable A-Law or μ-Law companding
- provision of limited line current to telephone sets on short loops and under fault conditions; otherwise, loop current varies to allow automatic gain compensation according to loop length

The NT5K02KB is used in Holland, India, Ireland, and Portugal.

NT5K02LD Flexible Analog Line Card (New Zealand)

Provides an interface for up to 16 analog (500/2500-type) telephone lines. It provides the following features:

- telephone on-hook and off-hook detection
- ground button detection
- relay for connecting an AC ringer
- variable loop current to allow automatic gain compensation according to loop length
- flashing high-voltage 1 Hz Message Waiting signal

The NT5K02LD is used in New Zealand.

NT5K02MC Flexible Analog Line Card (Norway)

Provides an interface for up to 16 analog (500/2500-type) telephone lines. It provides the following:

- hookswitch flash detection
- ground button detection
- variable loop current to allow automatic gain compensation according to loop length
- a flashing low-voltage 1 Hz Message Waiting signal

The NT5K02MC is used in Norway.

NT5K02NC Flexible Analog Line Card (Sweden)

Provides an interface for up to 16 analog (500/2500-type) telephone lines. It provides the following features:

- support of Digipulse or Digitone telephones
- telephone on-hook and off-hook detection based on loop current
- ground button detection
- relay for connecting an AC ringing signal
- collection of dial pulses (10 and 20 pps) from 500-type telephones
- analog-to-digital and digital-to-analog conversion for 16 analog telephone lines
- terminating impedance of 600 ohms
- software-selectable A-Law or μ-Law companding
- provision of limited line current to telephone sets on short loops and under fault conditions; otherwise, loop current varies to allow automatic gain compensation according to loop length
- a flashing low-voltage 1 Hz Message Waiting signal

The NT5K02NC is used in Sweden.

NT5K02SB Flexible Analog Line Card (Iceland and Turkey)

Provides an interface for up to 16 analog (500/2500-type) telephones lines. It provides the following features:

- analog-to-digital and digital-to-analog conversion for 16 analog telephone lines
- software-selectable A-Law or μ-Law companding
- card-identification for auto-configuration
- software-downloadable loss plan
- on-hook and off-hook detection
- connection for an AC ringing signal

- automatic disconnection when the telephone set goes on-hook
- ground button detection
- direct reporting of digits dialed (500 sets) by collecting dial pulses (10 and 20 pulses per second)
- provision of limited line current to telephone sets on short loops and under fault conditions; otherwise, loop current varies to allow automatic gain compensation according to loop length
- flashing low-voltage 1 Hz Message Waiting signal

The NT5K02SB is used in Iceland and Turkey.

NT5K07 Universal Trunk Card (Hong Kong)

Provides the interface between a trunk facility and an NT8D37 Intelligent Peripheral Equipment (IPE) Module.

The Hong Kong universal trunk card has eight units that can be configured as:

- Central Office (CO), Foreign Exchange (FX), and Wide Area Telephone Service (WATS)
- Direct Inward Dial (DID) and Direct Outward Dial (DOD)
- tie two-way dial repeating (2DR) and two-way outgoing automatic incoming dial (OAID)
- Paging (PAG)

  Note: All-call zone paging is not supported.

- Recorded Announcement (RAN)

The universal trunk card also supports Music, Automatic Wake Up, and Direct Inward System Access (DISA). It does not support Message Registration or periodic pulse metering (PPM).

Table 3 is a matrix of the trunk types and signaling supported by the universal trunk card.

Table 3
Supported trunk type and signaling matrix

	CO/FX/ WATS	DID/ DOD	TIE	PAG	RAN
Loop start	yes	no (see Note)	no	no	no
Ground start	yes	no	no	no	no
Loop dial repeating	no	yes	yes	no	no
Loop OAID	no	no	yes	no	no
Note: DID trunks are loop dial repeating (loop start); however, programming trunks as loop start is not supported.					

The NT5K07 is used in Hong Kong.

NT5K17AB Direct Dial Inward (DDI) Trunk Card (UK)

Provides interface connecting the trunk facility to the NT8D37 IPE Module. It is equipped with an Intel 8052-type microprocessor that performs several functions, some of which are card identification, self-test, status reporting to the controller, and maintenance diagnostics.

The DDI provides eight analog trunks, each of which can be individually configured to operate as Direct Dial Inward units.

NT5K17BB Direct Dial Inward (DDI) Trunk Card (New Zealand)

Provides the interface to up to eight analog DDI trunk lines. The NT5K17BA DDI card supports the following:

- pulse detection up to 22 pps

- dialing in the form of DTMF signaling or loop disconnect signaling
- New Zealand inverted dialing

Each NT5K17BB DDI Trunk Card:

- allows trunk signaling type to be configured on a per unit basis
- allows individual units or the entire board to be disabled by software
- provides indication of card status on the faceplate LED
- converts transmission signals from analog to digital and from digital to analog for up to eight audio paths
- supports the New Zealand loss plan
- provides termination impedance to match the New Zealand three-component complex network
- provides trans-hybrid balance matching against the New Zealand complex impedance
- provides analog-to-digital and digital- to-analog call path losses for DDI trunk units, values downloadable in the initial configuration stage

The NT5K17BB is used in New Zealand.

NT5K17CA Direct Dial Inward (DDI) Trunk Card (New Zealand)

Provides the interface to up to eight analog DDI trunk lines. The NT5K17BA DDI card supports the following:

- pulse detection up to 22 pps
- dialing in the form of DTMF signaling or loop disconnect signaling
- New Zealand inverted dialing

Each NT5K17CA DDI Trunk Card:

- allows trunk signaling type to be configured on a per unit basis
- allows individual units or the entire board to be disabled by software
- provides indication of card status on the faceplate LED

- converts transmission signals from analog to digital and from digital to analog for up to eight audio paths
- supports the New Zealand loss plan
- provides termination impedance to match the New Zealand three-component complex network
- provides trans-hybrid balance matching against the New Zealand complex impedance
- provides analog-to-digital and digital- to-analog call path losses for DDI trunk units (values are downloadable in the initial configuration stage)

The NT5K17CA is used in New Zealand.

NT5K18AB Flexible Central Office Trunk Card (UK and France)

Provides interface connecting the trunk facility to the NT8D37 IPE Module. It is equipped with an Intel 8052-type microprocessor that performs several functions, some of which are:

- control of card operation
- card identification
- self-test
- status reporting to the controller
- maintenance diagnostics

The card provides interfaces to eight central office trunks and can be configured in software for either A-Law or μ-Law operation. Each interface provides the appropriate complex impedance to the line in compliance with UK and French regulatory specifications.

Each of these ports can be individually configured to operate as follows:

- Ground Start CO trunk
- Loop Disconnect Clear
- Loop Guarded Release

Each of the above signaling schemes is designed in compliance with the relevant UK and French specifications.

The NT5K18AB is used in the United Kingdom and France.

NT5K18BB Central Office Trunk Card (New Zealand)

Has eight identical units that provide the interface to up to eight analog Central Office (CO) trunks. The trunk type of each unit is configured independently in the trunk data block (LD 14) as one of the following:

- central office, ground start
- central office, loop start

The NT5K18BB Central Office Trunk card supports Direct Inward System Access (DISA), battery supervision, and inverted dialing.

The NT5K18BB Central Office Trunk card:

- allows the trunk type to be configured on a per unit basis
- provides disabling of individual units or the entire card through software
- indicates self-test status during an automatic or manual self-test
- converts transmission signals from analog to digital and from digital to analog
- provides complex terminating impedance in compliance with regulatory New Zealand standards
- provides complex balance impedance in compliance with regulatory New Zealand standards

The NT5K18BB is used in New Zealand.

NT5K19AC Flexible E&M Trunk Card (UK)

Provides interface connecting the trunk facility to the NT8D37 IPE Module. It is equipped with an Intel 8052-type microprocessor that performs several functions, some of which are:

- card identification

- self-test
- status reporting to the controller
- maintenance diagnostics

The NT5K19AC provides four analog trunks, each of which can be individually configured to operate as follows:

- 4-wire E&M Type 1 tie trunk (DC5)
- 2-wire E&M TYPE 1 tie trunk (DC5)
- 2280 Hz tie trunk (AC15)
- Music trunk
- Paging trunk
- Emergency Recorder trunk

The NT5K19AC is used in the United Kingdom.

NT5K19BB E&M TIE Trunk Card (New Zealand)

Provides the interface to up to four analog trunks. Each trunk circuit can be individually configured as:

- 4-wire E&M Type 1 tie trunk (DC5)
- Nortel Networks Integrated Recorded Announcement trunk
- Music trunk (MUS)
- Paging trunk (PAG)

The NT5K19BB E&M TIE Trunk card supports New Zealand inverted dialing.

The NT5K19BB E&M TIE Trunk card supports the following types of announcement machines:

- start mode announcement machines
- continuous mode announcement machines

Recorded announcers supported include the Cook Digital 4-channel announcer and the Audichron HQI-112.

The NT5K19BB E&M TIE Trunk Card:

- converts transmission signals from analog to digital and from digital to analog
- provides software-selectable A-Law or μ-Law operation
- enables and disables individual units or the entire card under software control
- provides outpulsing on the card; make-break ratios are defined in software and downloaded during power-up and by software commands
- provides indication of card status on the faceplate LED
- allows the trunk type to be configured on a per unit basis in software
- provides termination against 600 ohms for 4-wire E&M DC5 trunk circuits
- provides flexible transmission for various loss plans
- provides Paging (PAG), Recorded Announcement (RAN), and Music (MUS) interfaces

The NT5K19BB is used in New Zealand.

This tone detector has been replaced by the NT5K48 tone detector.

NT5K21BA Extended Multifrequency Compelled Sender/Receiver

Provides signaling across a trunk interface according to CCITT R2 signaling standard (XMFC). This card also provides signaling across a trunk interface according to French Socotel standards (XMFE), and operates in either A-Law or μ-Law companding.

The NT5K21AA has four units, each capable of handling one call.

NT5K36AB DID/DOD Trunk Card (Austria and Germany)

Provides the interface to up to four analog trunks.

Each NT5K36AB DID/DOD Trunk Card:

- indicates self-test status during an automatic or manual self-test (self-test pass is indicated on the faceplate LED)
- converts transmission signals from analog to digital and from digital to analog for up to four audio paths
- disables individual circuits or the entire board under software control
- provides internal 16 kHz pulse detection
- provides transmission performance according to German specifications
- provides the correct signaling impedances and voltages to operate with the German central office

The NT5K36AB is used in Austria and Germany.

NT5K36BA DID/DOD Trunk Card (Germany)

Provides the interface to up to four analog trunks.

Each NT5K36AB DID/DOD Trunk Card:

- indicates self-test status during an automatic or manual self-test (self-test pass is indicated on the faceplate LED)
- converts transmission signals from analog to digital and from digital to analog for up to four audio paths
- disables individual circuits or the entire board under software control
- provides internal 16 kHz pulse detection
- provides transmission performance according to German specifications
- provides the correct signaling impedances and voltages to operate with the German central office

The NT5K36BA is used in Germany.

NT5K48AC Tone Detector Card

Provides tone detection for dual tone multifrequency (DTMF) or dial tone detection (DTD).

The NT5K48AC Global Tone Detector circuit card:

- provides eight channels of DTMF or dial tone detection
- provides both first stage dial tone detection and second stage DTD on a call-by-call basis

  Note: The NT5K48AC Tone Detector remains dedicated to the call while the connecting process is progressing. Once the call is connected, the tone detector is released. It does not detect dial tone after the call is established.

- supports both A-Law and μ-Law companding
- provides card-identification for auto-configuration and for determining the serial number and firmware level of the card
- provides for hardware self-test
- allows country-specific DTMF and dial tone characteristics to be downloaded from software

The Global Tone Detector circuit card operates in the following countries:

- Australia
- Germany
- Holland
- Italy
- New Zealand
- Spain
- Switzerland
- United Kingdom

Note: The NT5K48AC is configured in software. There are no switch settings on the card.

NT5K48BA Tone Detector Card (Denmark)

Provides tone detection for either dual tone multifrequency (DTMF) or dial tone detection (DTD). It does the following:

- provides eight channels of tone detection configurable on a call connection basis
- DTD configurable on a call connection basis

  Note: The NT5K48 Tone Detector operates only during call setup. When a connection is established, it drops out of the call.

- allows country-specific DTMF and dial tone characteristics to be downloaded from software (using LD 97)

The NT5K48BA tone detector is used in Denmark.

NT5K48DA Tone Detector Card (Norway)

Provides tone detection for either dual tone multifrequency (DTMF) or dial tone detection (DTD). It does the following:

- provides eight channels of tone detection configurable on a call connection basis
- provides both first stage dial tone detection and second stage DTD configurable on a call connection basis

  Note: The NT5K48 Tone Detector operates only during call setup. When a connection is established, it drops out of the call.

- allows country-specific DTMF and dial tone characteristics to be downloaded from software (using LD 97)

The NT5K48DA is used in Norway.

NT5K48FA Tone Detector Card (France)

The NT5K48FA is used in France.

NT5K48GA Tone Detector Card (Sweden)

The NT5K48GA is used in Sweden.

NT5K50AA E&M TIE Trunk Card (France)

Provides the interface to up to four analog trunks.

The NT5K50AA E&M TIE Trunk card supports four analog trunks. Each trunk circuit can be individually configured as:

- 4-wire E&M Battery Pulse Option (BPO) (Type V)
- 4-wire E&M Type II
- Recorded Announcement (RAN) trunk
- Paging (PAG) trunk
- Music (MUS) trunk

The NT5K50AA E&M TIE Trunk card:

- has four switch settings (one per unit) to select BPO (Type V) E&M signaling.
- supports wink, immediate start, or delay dial signaling
- converts transmission signals from analog to digital and from digital to analog
- provides software-selectable A-Law or μ-Law operation
- enables and disables individual units or the entire card under software control
- provides indication of card status on the faceplate LED
- allows the trunk type to be configured on a per unit basis in software
- provides termination against 600 ohms for 4-wire trunk circuits
- provides flexible transmission for various loss plans
- provides Paging (PAG), Recorded Announcement (RAN), and Music (MUS) interfaces

The NT5K50AA is used in France.

NT5K60AB Direct Dial Inward (DDI) Card (CIS)

The NT5K60AB is an 8-port 3-wire DDI card with 2-way release.

The NT5K60AB is used in the Commonwealth of Independent States (CIS).

NT5K61AA Direct Dial Outward (DDO) Card (CIS)

The NT5K61AA is an 8-port 3-wire DDO card.

The NT5K61AA is used in the Commonwealth of Independent States (CIS).

NT5K70AB Central Office Trunk Card (Austria, Finland, Germany, and Portugal)

Provides the interface to up to eight analog Central Office (CO) trunks.

The NT5K70AB Central Office Trunk card:

- supports internal 16 kHz periodic pulse metering (PPM)
- allows individual units or the entire board to be disabled by software
- provides software-selectable A-Law companding
- indicates self-test status during an automatic or manual self-test
- converts transmission signals from analog to digital and from digital to analog
- provides 2 dB transmission pads for long/short line operation
- provides termination and transhybrid balance impedance to match the German complex impedance network
- provides busy tone detection on a per unit basis, when configured to do so in software
- provides 100 ms flashhook for feature access
- provides direct reporting of periodic pulse metering (PPM) pulses to software in either buffered or unbuffered format

The NT5K70AB is used in Austria, Finland, Germany, and Portugal.

NT5K70KA Central Office Trunk Card (South Africa)

Provides the interface to up to eight analog Central Office (CO) trunks.

The NT5K70KA Central Office Trunk card:

- supports internal 12 kHz periodic pulse metering (PPM)
- allows individual units or the entire board to be disabled by software
- provides software-selectable A-Law companding
- indicates self-test status during an automatic or manual self-test
- converts transmission signals from analog to digital and from digital to analog
- provides 2 dB transmission pads for long/short line operation
- provides termination and transhybrid balance impedance to match the German complex impedance network
- provides busy tone detection on a per unit basis, when configured to do so in software
- provides 100 ms flashhook for feature access
- provides direct reporting of periodic pulse metering (PPM) pulses to software in either buffered or unbuffered format

The NT5K70KA is used in South Africa.

NT5K71AB Central Office Trunk Card (Austria and Germany)

Based on the NT5K70AB Trunk Card, but it connects up to four analog trunks instead of eight.

The NT5K71AB Central Office Trunk card:

- supports internal 16 kHz periodic pulse metering (PPM)
- allows individual units or the entire board to be disabled by software
- provides software-selectable A-Law companding

- indicates self-test status during an automatic or manual self-test
- converts transmission signals from analog to digital and from digital to analog
- provides 2 dB transmission pads for long/short line operation
- provides termination and transhybrid balance impedance to match the German complex impedance network
- provides busy tone detection on a per unit basis, when configured to do so in software
- provides 100 ms Flashhook for feature access
- provides direct reporting of periodic pulse metering (PPM) pulses to software in either buffered or unbuffered format

The NT5K71AB is used in Austria and Germany.

NT5K72AA E&M TIE Trunk Card (Austria, Finland, and Germany)

Supports four analog trunks. Each trunk circuit can be individually configured as:

- 4-wire E&M Type 1 and 2 trunk
- Recorded Announcement (RAN) trunk
- Music on Hold (MUS) trunk
- Paging (PAG) trunk

Recorded announcers supported include the Cook Digital 4-channel announcer, the Audichron HQI-112, and the Kreutler-Announcer.

The NT5K72AA is used in Austria, Finland, and Germany.

NT5K76AA XDAP Card

The NT5K76AA is used with all Large Systems and Small Systems.

The NT5K76AA is used in Europe, the Middle East, and Asia.

NT5K82AB Central Office Trunk Card (Switzerland)

Supports eight analog Central Office (CO) trunks. It provides the following:

- loop start operation
- 12 kHz periodic pulse metering (PPM)
- a choice between the old Swiss loss plan and the new Swiss loss plan, depending on the hardware configuration of the system
- trunk type to be configured on a per unit basis
- individual units or the entire board to be disabled by software
- software-selectable A-Law or µ-Law companding
- self-test status during an automatic or manual self-test
- card-identification for auto-configuration and for determining the serial number and firmware level of the card
- transmission signals from analog to digital and from digital to analog
- adjustable transmission pads for long or short line operation
- termination and transhybrid balance impedance to match the Swiss complex impedance network
- direct reporting of periodic pulse metering (PPM) pulses to software in either buffered or unbuffered format
- loop break detection and supervision on a per unit basis
- barring detection and supervision on a per unit basis
- busy tone detection and supervision on a per unit basis

The NT5K82AB is used in Switzerland.

NT5K82BB/CB Central Office Trunk Card (Australia)

The Central Office Trunk Card for Australia comes in two versions: NT5K82BB and NT5K82CB. The NT5K82CB card has an on-board 12 kHz PPM pulse detector, while the NT5K82BB card does not. The NT5K82BB card counts 50 Hz pulses that are detected using external filters.

The Central Office Trunk Card has eight units and:

- supports loop start signaling
- allows the trunk type to be configured on a per unit basis
- allows individual units or the entire board to be disabled by software
- provides software-selectable A-Law or μ-Law companding
- indicates self-test status during an automatic or manual self-test
- provides card-identification for auto-configuration and for determining the serial number and firmware level of the card
- converts transmission signals from analog to digital and from digital to analog
- downloads transmit and receive losses to the B34 Codec for operation over long and short lines
- provides termination and transhybrid balance impedance to match the Australian complex impedance network
- provides direct reporting of periodic pulse metering (PPM) pulses to software in either buffered or unbuffered format
- provides Autoguard fault detection to prevent a faulty trunk from being seized on an outgoing call
- provides Fastguard (battery reversal) detection on incoming calls prior to ringing
- supports dynamic loss switching on a call by call basis
- provides busy tone detection to support far end release

The NT5K82BB and NT5K82CB are used in Australia.

NT5K82HA Central Office Trunk Card (Belgium)

Provides the interface to up to eight analog Central Office (CO) trunks.

The NT5K82HA card has an on-board 12 kHz PPM pulse detector that counts 50 z pulses using external filters.

The NT5K82HA Central Office Trunk card:

- provides conversion for eight audio paths
- provides software-selectable A-Law and μ-Law operations
- provides indication of board status with faceplate-mounted LED
- provides for disabling of individual units or the entire board under software or Extended Peripheral Equipment Controller (XPEC) control
- provides loopback of pulse code modulation (PCM) signals to DS30X for testing and diagnostic purposes
- indicates self-test status with faceplate LED
- provides termination impedance to match Belgian complex impedance Z1
- provides transhybrid balance matching against Belgian complex impedance Z1
- provides for loss pads (analog-to-digital and digital-to-analog) as per the Belgian loss plan and call path set-up
- meets the Belgian loss plan and provides a base for future loss plan change by use of the B34 Codec with software-selectable loss pads
- corrects signaling impedances to operate with the Belgian central office
- supports multifrequency compelled (MFC) signaling when used with the NT5K21 XMFC Sender/Receiver card

The NT5K82HA is used in Belgium.

NT5K82JA Central Office Trunk Card (South Africa)

Provides the interface to up to eight analog Central Office (CO) trunks.

The NT5K82HA is used in South Africa.

NT5K83AB E&M TIE Trunk Card (Spain and Switzerland)

Supports four analog trunks. Each trunk circuit can be individually configured as:

- 4-wire E&M Type 1 and 2 trunk
- Recorded Announcement (RAN) trunk
- Music on Hold (MUS) trunk
- Paging (PAG) trunk

Announcement machines supported include the Cook Digital 4-channel announcer and the Audichron HQI-112.

The NT5K83AB E&M TIE Trunk Card:

- is equipped with four trunk units
- converts transmission signals from analog to digital and from digital to analog
- provides software-selectable A-Law or μ-Law operation
- enables and disables individual units or the entire card under software control
- provides outpulsing on the card (make-break ratios are defined in software and downloaded during power up and by software commands)
- provides indication of card status from self-test diagnostics on the LED
- allows the trunk type to be configured on a per unit basis in software
- provides termination against 600 ohms for 4-wire E&M trunk circuits
- provides flexible transmission for various loss plans
- provides Paging (PAG), Recorded Announcement (RAN), and Music (MUS) interfaces

The NT5K83AB is used in Spain and Switzerland.

NT5K83BB E&M TIE Trunk Card (Denmark and Ireland)

Supports four analog trunks. Each trunk circuit can be individually configured as:

- 4-wire E&M Type 1 and 2 trunk
- Recorded Announcement (RAN) trunk
- Music on Hold (MUS) trunk
- Paging (PAG) trunk

The NT5K83BB E&M TIE Trunk card provides the choice between the old Danish loss plan and the new Danish loss plan. The old plan is chosen when existing peripheral equipment (EPE) or enhanced existing peripheral equipment (EEPE) is used. The new loss plan is chosen when only intelligent peripheral equipment (IPE) or intelligent enhanced peripheral equipment (IEPE) is used.

The NT5K83BB is used in Denmark and Ireland.

NT5K83CB E&M TIE Trunk Card (Norway)

Supports four analog trunks. Each trunk circuit can be individually configured as:

- 4-wire E&M Type 1 and 2 trunk
- Recorded Announcement (RAN) trunk
- Music on Hold (MUS) trunk
- Paging (PAG) trunk

The NT5K83CB E&M TIE Trunk card provides the choice between the old Norwegian loss plan and the new Norwegian loss plan. The old plan is chosen when existing peripheral equipment (EPE) or enhanced existing peripheral equipment (EEPE) is used. The new loss plan is chosen when only intelligent peripheral equipment (IPE) or intelligent enhanced peripheral equipment (IEPE) is used.

The NT5K83CB E&M TIE Trunk card:

- is equipped with four trunk units
- converts transmission signals from analog to digital and from digital to analog
- enables and disables individual units or the entire card under software control
- provides outpulsing on the card (make-break ratios are defined in software and downloaded during power up and by software commands)
- provides indication of card status from self-test diagnostics on the LED
- allows the trunk type to be configured on a per unit basis in software
- provides termination against 600 ohms for 4-wire E&M trunk circuits
- provides Paging (PAG), Recorded Announcement (RAN), and Music interfaces

The NT5K83CB is used in Norway.

NT5K83DB E&M TIE Trunk Card (Holland and CIS)

Provides the interface among up to four analog trunks. Each trunk circuit can be individually configured as:

- 2-wire E&M BPO (Type V)
- 4-wire E&M Type I, Type II, BPO (Type V)
- Cept L1 2280 Hz tie trunk (AC15 signaling in the UK)
- Recorded Announcement (RAN) trunk
- Paging (PAG) trunk
- Music (MUS) trunk

The NT5K83DB E&M TIE Trunk card:

- has four switch settings (one per unit) to select BPO (Type V) E&M signaling

Note: Signaling is service-changeable, eliminating the need to set the hardware switches.

- supports wink, immediate start, or delayed dialing signaling

The NT5K83DB E&M TIE Trunk Card supports the following types of announcement machines:

- start mode announcement machines
- continuous mode announcement machines

Recorded announcement machines supported include the Cook Digital 4-channel announcer and the Audichron HQI-112.

The NT5K83DB E&M TIE Trunk Card:

- supports wink, immediate start, or delay dial signaling
- converts transmission signals from analog to digital and from digital to analog
- provides software-selectable A-Law or µ-Law operation
- enables and disables individual units or the entire card under software control
- provides indication of card status on the faceplate LED
- allows the trunk type to be configured on a per unit basis in software
- provides termination and transhybrid balance matching against 600 ohms for 2-wire E&M trunk circuits
- provides termination against 600 ohms for 4-wire and CEPT L1 E&M trunk circuits
- provides flexible transmission for various loss plans
- provides Paging (PAG), Recorded Announcement (RAN), and Music (MUS) interfaces

The NT5K83DB is used in Holland and the CIS.

NT5K83EA E&M TIE Trunk Card (Australia)

Provides the interface to up to four analog trunks.

The NT5K83EA E&M TIE Trunk card supports four analog trunks. Each trunk circuit can be individually configured as:

- 4-wire E&M Type C2 Earth-off idle (configured as Type 1 in software)
- Recorded Announcement (RAN)
- Music trunk (MUS)
- Paging trunk (PAG)

The NT5K83EA E&M TIE Trunk card:

- downloads transmit and receive losses to the B34 Codec
- supports dynamic loss switching on a call-by-call basis
- converts transmission signals from analog to digital and from digital to analog
- enables and disables individual units or the entire card under software control
- provides outpulsing on the card (make-break ratios are defined in software and downloaded during power up and by software commands)
- provides indication of card status from self-test diagnostics on the LED
- allows the trunk type to be configured on a per unit basis in software
- provides termination against 600 ohms for 4-wire E&M trunk circuits
- provides Paging (PAG), Recorded Announcement (RAN), and Music interfaces

The NT5K83EA is used in Australia.

NT5K83FA E&M TIE Trunk Card (India and Sweden)

Provides the interface to up to four analog trunks.

The NT5K83FA E&M TIE Trunk card supports four analog trunks. Each trunk circuit can be individually configured as:

- 2-wire E&M BPO (Type V)
- 4-wire E&M Type II
- Recorded Announcement (RAN) trunk
- Paging (PAG) trunk
- Music (MUS) trunk

The NT5K83FA E&M TIE Trunk card:

- has four switch settings (one per unit) to select BPO (Type V) E&M signaling.
- supports wink, immediate start, or delay dial signaling
- converts transmission signals from analog to digital and from digital to analog
- provides software-selectable A-Law or µ-Law operation
- enables and disables individual units or the entire card under software control
- provides indication of card status on the faceplate LED
- allows the trunk type to be configured on a per unit basis in software
- provides termination and trans-hybrid balance matching against Sweden Complex impedance for 2-wire E&M trunk circuits
- provides termination against 600 ohms for 4-wire trunk circuits
- provides flexible transmission for various loss plans
- provides Paging (PAG), Recorded Announcement (RAN), and Music (MUS) interfaces

The NT5K83FA is used in India and Sweden.

NT5K83GA E&M TIE Trunk Card (Italy)

Provides the interface to up to four analog trunks.

The NT5K83GA E&M TIE Trunk card supports four analog trunks. Each trunk circuit can be individually configured as:

- 4-wire E&M Type 1 and 2
- 2-wire E&M Types 1, 2, and 5 (BPO)
- Recorded Announcement (RAN) trunk
- Music trunk (MUS)
- Paging trunk (PAG)

The NT5K83GA E&M TIE Trunk card:

- is equipped with four trunk units
- converts transmission signals from analog to digital and from digital to analog
- provides software-selectable A-Law or μ-Law operation
- enables and disables individual units or the entire card under software control
- provides outpulsing on the card (make-break ratios are defined in software and downloaded during power up and by software commands)
- provides indication of card status from self-test diagnostics on the LED
- allows the trunk type to be configured on a per unit basis in software
- provides 600 ohm termination for 2- and 4-wire E&M trunk circuits
- provides flexible transmission for various loss plans
- provides Paging (PAG), Recorded Announcement (RAN), and Music (MUS) interfaces

The NT5K83GA is used in Italy.

NT5K83HB E&M TIE Trunk Card (Belgium)

Provides the interface to up to four analog trunks.

The NT5K83HB E&M TIE Trunk card supports four analog trunks. Each trunk circuit can be individually configured as:

- 2- and 4-wire E&M Transmission
- Type I, Type II and Type V E&M signaling
- Recorded Announcement (RAN) trunk
- Voice Paging Trunk features

The card supports these features on a per unit basis.

The NT5K83HB E&M TIE Trunk card:

- provides analog-to-digital and digital-to-analog conversion for four audio paths
- allows the trunk type to be configured on a per channel basis
- provides software-selectable A-Law and μ-Law operation
- indicates self-test status with faceplate LED
- provides for disabling of individual units or the entire board under software or XPEC control
- provides outpulsing on the card; the make-break ratios are software downloadable in the initial configuration stage
- provides loopback of pulse code modulation (PCM) signals to DS30X for testing and diagnostic purposes
- provides termination against 600 ohms for 4-wire E&M trunk circuits
- provides termination and transhybrid balance matching against 600 ohms for 2-wire E&M trunk circuits
- provides a PAG (Voice Paging) interface
- provides an Recorded Announcement (RAN) interface
- provides a Radio Paging interface
- provides flexible transmission for various loss plans

- interfaces each of the four PCM digital signals to one DS30X channel in A10 format
- sends transmit and receive SSD signaling messages over a DS30X signaling channel in A10 format

The NT5K83HB is used in Belgium.

NT5K83KA E&M TIE Trunk Card (EMEA)

Provides the interface to up to four analog trunks.

The NT5K83KA is used in Europe, the Middle East, and Asia.

NT5K83LA E&M TIE Trunk Card (KAPSCH)

Provides the interface to up to four analog trunks.

NT5K83SA E&M TIE Trunk Card (Spain)

Provides the interface to up to four analog trunks.

The NT5K83SA is used in Spain.

NT5K84AB Direct Inward Dial (DID) Trunk Card (Switzerland)

Supports eight analog trunks. Each trunk circuit operates as a DID trunk.

The NT5K84AB DID Trunk card provides a choice between the old Swiss loss plan and the new loss plan. The old plan is used when existing peripheral equipment (EPE) or enhanced existing peripheral equipment (EEPE) is present. The new loss plan is used when only intelligent peripheral equipment (IPE) or enhanced intelligent enhanced peripheral equipment (IEPE) is present.

Each NT5K84AB DID Trunk card:

- converts transmission signals from analog to digital and from digital to analog for up to eight audio paths
- supports the new Swiss loss plan

- provides adjustable transmission pads for long line or short line operation
- provides termination and trans-hybrid balance impedance to match the Swiss complex impedance network
- provides the correct signaling impedances and voltages to operate with the Swiss central office
- supports multifrequency compelled (MFC) signaling when used with the XMFC Sender/Receiver card (NT5K21)

The NT5K84AB is used in Switzerland.

NT5K84BA Direct Inward Dial (DID) Trunk Card (Australia)

Provides the interface among up to eight analog DID trunk lines.

Each NT5K84BA DDI Trunk card:

- allows the trunk signaling type to be configured on a per unit basis
- indicates self-test status during an automatic or manual self-test (self-test pass is indicated on the faceplate LED
- converts transmission signals from analog to digital and from digital to analog for up to eight audio paths
- supports dynamic loss switching on a call by call basis
- provides termination impedance to match the Australian three-component complex network
- provides trans-hybrid balance matching against the Australian complex impedance
- provides analog-to-digital and digital-to-analog call path losses for DDI trunk units, values downloadable in the initial configuration stage

The NT5K84BA is used in Australia.

NT5K84HA Direct Inward Dial (DID) Trunk Card (Belgium)

Provides the interface to up to eight analog DID trunk lines.

The NT5K84HA supports the Belgian Direct Inward Dialing Signaling protocol.

Each NT5K84HA DID Trunk card:

- provides analog-to-digital and digital-to-analog conversion for eight audio paths
- uses software-selectable A-Law and μ-Law operation
- indicates self-test status with faceplate LED
- provides for disabling of individual units or the entire board under software or XPEC control
- provides loopback of pulse code modulation (PCM) signals to DS30X for testing and diagnostic purposes
- provides termination impedance to match Belgian complex impedance Z1
- provides transhybrid balance matching against Belgian complex impedance Z1
- provides for loss pads (analog-to-digital and digital-to-analog) as per the Belgian loss plan and call path setup
- meets the Belgian loss plan and provides a base for future loss plan change by use of the B34 Codec with software-selectable loss pads
- corrects signaling impedances to operate with the Belgian central office
- supports multifrequency compelled (MFC) signaling when used with the NT5K21 XMFC Sender/Receiver card

The NT5K84HA is used in Belgium.

NT5K90AA Central Office Trunk Card (Denmark)

Supports eight analog Central Office (CO) trunks. It provides:

- loop start operation
- supervised loop start signaling using CO polarity reversals (ARF signaling)

- Direct Inward System Access (DISA), but only when configured in the supervised loop start signaling mode
- a choice between the old Danish loss plan and the new Danish loss plan, depending on the hardware configuration of the system
- busy tone detection (detection of far end release)
- 12 kHz periodic pulse metering (PPM), also referred to as subscriber pulse metering (SPM)

The NT5K90AA is used in Denmark.

NT5K90BA Central Office Trunk Card (Denmark)

Supports eight analog Central Office (CO) trunks. It provides:

- loop start operation
- supervised loop start signaling using CO polarity reversals (ARF signaling)
- Direct Inward System Access (DISA), but only when configured in the supervised loop start signaling mode
- a choice between the old Danish loss plan and the new Danish loss plan, depending on the hardware configuration of the system

The NT5K90BA is used in Denmark.

NT5K93AA Central Office Trunk Card (Norway)

Provides the interface to up to eight analog Central Office (CO) trunks.

The NT5K93AA Central Office Trunk card:

- provides loop start operation
- is equipped with eight trunk units
- allows the trunk type to be configured on a per unit basis
- provides software-selectable A-Law or μ-Law companding
- indicates self-test status during an automatic or manual self-test

- provides card-identification for auto-configuration and for determining the serial number and firmware level of the card
- converts transmission signals from analog to digital and from digital to analog
- provides a choice between old or new Norwegian loss plans
- provides adjustable transmission pads for long/short line operation
- provides direct reporting of periodic pulse metering (PPM) pulses to software in either buffered or unbuffered format

The NT5K93AA is used in Norway.

NT5K93BA Central Office Trunk Card (Norway)

Provides the interface to up to eight analog Central Office (CO) trunks.

The NT5K93BA Central Office Trunk card:

- provides loop start operation
- is equipped with eight trunk units
- allows the trunk type to be configured on a per unit basis
- provides software-selectable A-Law or μ-Law companding
- indicates self-test status during an automatic or manual self-test
- provides card-identification for auto-configuration and for determining the serial number and firmware level of the card
- converts transmission signals from analog to digital and from digital to analog
- provides a choice between old or new Norwegian loss plans
- provides adjustable transmission pads for long/short line operation

The NT5K93BA is used in Norway.

NT5K96 Flexible Analog Line Card (XFALC)

Provides an interface for up to 16 analog (500/2500-type) telephone lines.

Applications:

- NT5K96BA — used in South Africa
- NT5K96EB — used in Austria, Finland, Germany, and Greece
- NT5K96HB — used in Belgium
- NT5K96JC — used in Denmark (see description below)
- NT5K96KB — used in Holland, Ireland, and Portugal (see description below)
- NT5K96MC — used in Norway (see description on page 108)
- NT5K96NC — used in Sweden (see description on page 108)
- NT5K96PC — used in Switzerland
- NT5K96SB — used in Spain (see description on page 109)
- NT5K96TB — used in Italy

NT5K96JC Flexible Analog Line Card (Denmark)

Provides an interface for up to 16 analog (500/2500-type) telephone lines. It provides the following features:

- hookswitch flash detection
- ground button detection
- variable loop current to allow automatic gain compensation according to loop length

The NT5K96JC is used in Denmark.

NT5K96KB Flexible Analog Line Card (Holland, Ireland, and Portugal)

Provides an interface for up to 16 analog (500/2500-type) telephone lines. It provides the following features:

- support of Digipulse or Digitone telephones
- telephone on-hook and off-hook detection based on loop current

- ground button detection
- relay for connecting an AC ringing signal
- collection of dial pulses (10 and 20 pps) from 500-type telephones
- analog-to-digital and digital-to-analog conversion for 16 analog telephone lines
- terminating impedance of 600 ohms
- software-selectable A-Law or μ-Law companding
- provision of limited line current to telephone sets on short loops and under fault conditions; otherwise, loop current varies to allow automatic gain compensation according to loop length

The NT5K96KB is used in Holland, Ireland and Portugal.

NT5K96MC Flexible Analog Line Card (Norway)

Provides an interface for up to 16 analog (500/2500-type) telephone lines. It provides the following:

- hookswitch flash detection
- ground button detection
- variable loop current to allow automatic gain compensation according to loop length

The NT5K96MC is used in Norway.

NT5K96NC Flexible Analog Line Card (Sweden)

Provides an interface for up to 16 analog (500/2500-type) telephone lines. It provides the following features:

- support of Digipulse or Digitone telephones
- telephone on-hook and off-hook detection based on loop current
- ground button detection
- relay for connecting an AC ringing signal
- collection of dial pulses (10 and 20 pps) from 500-type telephones

- analog-to-digital and digital-to-analog conversion for 16 analog telephone lines
- terminating impedance of 600 ohms
- software-selectable A-Law or µ-Law companding
- provision of limited line current to telephone sets on short loops and under fault conditions; otherwise, loop current varies to allow automatic gain compensation according to loop length

The NT5K96NC is used in Sweden.

NT5K96SB Flexible Analog Line Card (Spain)

Provides an interface for up to 16 analog (500/2500-type) telephones lines. It provides the following features:

- analog-to-digital and digital-to-analog conversion for 16 analog telephone lines
- software-selectable A-Law or µ-Law companding
- card-identification for auto-configuration
- software-downloadable loss plan
- on-hook and off-hook detection
- connection for an AC ringing signal
- automatic disconnection when the telephone set goes o-hook
- ground button detection
- direct reporting of digits dialed (500 sets) by collecting dial pulses (10 and 20 pulses per second)
- provision of limited line current to telephone sets on short loops and under fault conditions; otherwise, loop current varies to allow automatic gain compensation according to loop length

The NT5K96SB is used in Spain.

NT5K99AA/BA Central Office Trunk Card (Spain)

Provide the interface between to up to eight analog Central Office (CO) trunks. The NT5K99AA card supports internal 12 kHz periodic pulse metering (PPM); the NT5K99BA card does not support the PPM feature.

The NT5K99 Central Office Trunk Cards:

- provide loop start operation
- provide battery reversal detection
- are equipped with eight trunk units
- allow the trunk type to be configured on a per unit basis
- allow individual units or the entire board to be disabled by software
- provide software-selectable A-Law companding
- indicate self-test status during an automatic or manual self-test
- provide card-identification for auto-configuration and for determining the serial number and firmware level of the card
- convert transmission signals from analog to digital and from digital to analog
- provide 2 dB transmission pads for operation over long or short lines
- provide termination and transhybrid balance impedance to match the Spanish complex impedance network
- provide direct reporting of periodic pulse metering (PPM) pulses to software in either buffered or unbuffered format
- provide detection and reporting of battery reversals from the central office

The NT5K99 is used in Spain.

NT6D70AA S/T Interface Line Card (SILC)

Provides eight S/T four-wire full duplex interfaces that connect ISDN BRI compatible terminals over Digital Subscriber Lines (DSL) to the cabinet system. Each S/T interface provides two B-channels and one D-channel and

supports a maximum of eight physical connections that can link up to 20 logical terminals on one DSL. The length of the DSL should not exceed 1 km (3,280 ft.).

The main functions are to:

- provide eight ISDN S/T interfaces conforming to ANSI, ETSI, and ITU standards
- support point-to-point and multipoint DSL terminal connections
- execute instructions received from the CPU to configure and control the S/T interfaces
- provide channel mapping between ISDN BRI format 2B+D and IPE bus format
- multiplex four D-channels onto one timeslot
- perform activation and deactivation of DSLs
- provide loopback control of DSLs
- provide a reference clock to the clock controller

The SILC is housed in the IPE slot.

The NT6D70AA SILC is used only in North America (-48V).

NT6D71AA U Interface Line Card (UILC)

Provides eight two-wire full-duplex U interfaces to connect ISDN BRI-compatible terminals over DSLs to the system. Each U interface provides two B-channels and one D-channel and supports one physical termination. The length of a DSL should not exceed 5.5 km (3.3 mi.).

The main functions are to:

- provide eight ISDN U interfaces conforming to ANSI standards
- support point-to-point DSL terminal connections
- provide channel mapping between ISDN BRI and IPE bus formats
- support M-channel functions as specified by ANSI standards

- multiplex four D-channels onto one 64 Kbit/s timeslot
- support maintenance information messages
- perform activation and deactivation of DSLs
- provide loopback control of DSLs

The UILC is housed in the IPE Module and communicates with the MISP over the peripheral controller card, which is also housed in the IPE Module.

NT7D16BA Data Access Card

Provides interface to up to six data units, or ports, with each port operating in either RS-232-C or RS-422 mode. Provides connections for data terminal equipment (DTE) or data communication equipment (DCE) such as terminals, personal computers, modems, and mainframe host computers.

NT7R52AD Remote Carrier Interface Card

Provides a primary interface and control function between the NT1R51 Local Carrier Interface Card and the Carrier Remote IPE site. Each controller card serves up to 16 IPE cards. The controller card is equipped with a Motorola 68000-type microprocessor that performs some local call processing and maintenance diagnostics.

NT8D01 Controller Card

Provides a primary interface and control function between the NT8D04 Superloop Network Card and the IPE Module. Each controller card serves up to 16 IPE cards. The controller card is equipped with a Motorola 68000-type microprocessor that performs some local call processing and maintenance diagnostics.

The NT8D01BC Controller-4 Card interfaces with up to four superloop network cards.

The NT8D01BD Controller-2 Card interfaces with up to two superloop network cards.

NT8D02GA Digital Line Card

Provides interface to up to 16 digital integrated voice and data sets for a total of 32 ports. It is equipped with an 8051-family microprocessor that performs functions including:

- control of card operation
- card identification
- self-test
- status reporting to the controller
- maintenance diagnostics

NT8D09 Analog Message Waiting Line Card

Provides interface to up to 16 analog telephones (500/2500) with Message Waiting lamp feature.

Applications:

- NT8D09AL — used in Asia Pacific
- NT8D09BA

NT8D09BB Analog Message Waiting Line Card

Provides interface to up to 16 analog telephones (500/2500) with Message Waiting lamp feature. It is equipped with an 8051-family microprocessor that performs functions including:

- control of card operation
- card identification
- self-test
- status reporting to the controller
- maintenance diagnostics

NT8D14CA Universal Trunk Card

Provides interface to up to eight trunk facilities in A-Law or μ-Law applications. Each trunk unit is independently configured to operate as a:

- Central Office (CO), Foreign Exchange (FX), or Wide Area Telephone Service (WATS) trunk
- Direct Inward Dialing (DID) trunk
- two-way tie trunk
- Recorded Announcement (RAN) trunk
- Paging trunk

Each unit also provides the following signaling operation:

- ground start (CO/FX/WATS trunks)
- loop start (CO/FX/WATS trunks)
- loop dial repeating (DR) (DID and two-way tie trunks)
- loop outgoing automatic, incoming dial (OAID) (two-way tie trunks)
- continuous operation, pulse start, or level start (Recorded Announcement (RAN) trunks)

Trunk unit termination and balance impedance is selectable to 600 or 900 ohms, and balance or complex: 3COM1 or 3COM2.

The universal trunk card also supports Music, Automatic Wake Up, and Direct Inward System Access (DISA) features.

The card is equipped with a microprocessor that performs functions including:

- control of card operation
- card identification
- self-test
- status reporting to the controller
- maintenance diagnostics

The card complies with CSA Standard C82.2 No. 0.7-M1985 and EIA Standard 464A.

NT8D15AK E&M Trunk Card

Provides interface to up to four analog trunk facilities in A-Law and µ-Law applications. Provides interface connecting the trunk facility to the NT8D37 IPE Module. Each trunk unit is individually configured to operate as:

- two-wire E&M Type I signaling trunk
- four-wire E&M trunk
  - — Type I or Type II signaling
  - — Duplex (DX) signaling
- paging trunk

The card is equipped with a microprocessor that performs functions including:

- control of card operation
- card identification
- self-test
- status reporting to the controller
- maintenance diagnostics

The card complies with CSA Standard C82.2 No. 0.7-M1985 and EIA Standard 464A.

NT8D16AB Digitone Receiver Card

Provides eight channels of dual tone multifrequency (DTMF) detection. These channels are assigned on the DS30X loop. There is one 8 Kbit/s signaling channel provided for maintenance messaging and tone reporting.

The NT8D16 Digitone Receiver Card allows access to the filters for parameter alterations to service different environments (for example, international applications).

NT9C14AA CO/FX/WATS Trunk Card

Provides interfaces to four 600- or 900-ohm CO, FX, or WATS trunks in A-Law applications. This card can also detect ringing on either the tip ring or ring leads, and has a provision to extend the normal loop range from 1200 to 2600 ohms using balanced battery boost from the central office.

The output Pad Assembler/Dissembler (PAD) value has been customized for the China market.

The NT9C14 contains four separate identical trunk circuits. The trunk usage option is selected by switches on the circuit card.

Equipment: NTAA000 – NTZZ999

NTAG03AB Central Office Trunk Card (Holland)

Provides the interface to up to eight analog Central Office (CO) trunks.

The NTAG03AB Central Office Trunk Card:

- supports A-type signaling and 50 Hz periodic pulse metering (PPM) detection
- receives tone detection information from the tone detector card
- provides busy tone detection (far end release)
- allows the trunk type to be configured on a per unit basis
- provides disabling of individual units or the entire card through software
- indicates self-test status during an automatic or manual self-test
- converts transmission signals from analog to digital and from digital to analog
- provides 600 ohm terminating impedance in compliance with regulatory Holland standards
- provides complex balance impedance in compliance with regulatory Holland standards

The NTAG03AB is used in Holland.

NTAG04AA Central Office/DID Trunk Card (Holland)

Provides the interface to up to eight analog trunks. The NTAG04AA CO/DID Trunk Card has eight units, each of which can be individually configured as:

- central office incoming/outgoing trunk
- direct inward dial/direct outward dial trunk

The NTAG04AA CO/DID Trunk Card:

- supports ALS B1 and B2 signaling and 50 Hz periodic pulse metering (PPM) detection
- detects the polarity of the central office line
- detects incoming digipulses and sends a message to the central processing unit (CPU) for each digit
- allows the trunk type to be configured on a per unit basis
- provides disabling of individual units or the entire card through software
- indicates self-test status during an automatic or manual self-test
- converts transmission signals from analog to digital and from digital to analog
- provides 600 ohm terminating impedance in compliance with regulatory Holland standards
- provides complex balance impedance in compliance with regulatory Holland standards

The NTAG04AA is used in Holland.

NTAG26AB Enhanced Multifrequency Receiver (XMFR)

Receives MF digit information from the central office. This MF feature allows the system to receive 911 and Feature Group D applications. The XMFR has four ports, and operates only in Large Systems using μ-law compounding.

NTAG46AA Central Office Trunk Card (Saudi Arabia)

The NTAG46 is a low-loss COT card.

The NTAG46 is used in Saudi Arabia.

NTBX80AA ISDN Network Termination Unit (NT1)

Links the central office equipment and the customer premises equipment in ISDN. The NT1 is located at the customer premises, and supports ISDN Basic Rate Interface (BRI) service by providing two ANSI-standard interfaces:

- the subscriber loop (U loop), which connects the NT1 to the network
- the customer interface bus (S/T bus), which connects the NT1 to the customer's terminal equipment

The NTBX80 contains one stand-alone NT1 unit and is typically wall- or desk-mounted at the user's workstation. The stand-alone version has an optional companion power supply that converts AC power to the –48 V DC used by the NT1 unit.

NTBX84 Rack mount NT1 Card

The NTBX84AA NT1 Basic card provides card status indication to the NTBX80 NT1 Module as follows:

- test status of NT1
- status of frame synchronization on U interface
- status of frame synchronization on S/T interface
- S/T loop power overload

The NTBX84BA NT1 Enhanced card provides optional star bus configuration on the S/T interface. Two independent outputs provide mixed bus configurations and/or maximum loop reach to two user locations via one U loop.

NTCK16 Generic Central Office Trunk Card

Supports up to eight analog Central Office trunks. It has eight units and does the following:

- supports the North American loss plan
- supports loop start signaling
- supports busy tone detection and supervision on a per unit basis.
- supports battery reversal detection
- provides 4 dB dynamic attenuation pads on a per call basis
- allows individual units or the entire board to be disabled by software
- provides software-selectable A-Law or µ-Law companding
- indicates self-test status during an automatic or manual self-test
- provides card identification for auto-configuration and for determining the serial number and firmware level of the card
- converts transmission signals from analog to digital and from digital to analog
- provides termination and transhybrid balance impedance to match 600 ohms

The Generic Central Office Trunk card comes in two versions: A*x* and Bx. The NTCK16A*x* card supports internal 12/16 kHz PPM; the NTCK16B*x* card does not.

The NTCK16AA, BA, Ax, and Bx Generic Central Office Trunk cards are used in the following countries:

- Brazil
- Ireland
- Mexico
- Singapore
- Tortola

The NTCK16AE Generic Central Office Trunk cards are used in the following countries:

- Bahrain
- the Caribbean and Latin America (CALA)
- Commonwealth of Independent States (CIS)
- Egypt
- Greece
- Indonesia
- Ireland
- Pakistan
- Portugal
- Turkey

The NTCK16BE Generic Central Office Trunk cards are used in the following countries:

- Bahrain
- Caribbean and Latin American (CALA) countries
- Egypt
- Indonesia
- Korea
- Kuwait
- Lebanon
- Pakistan
- Portugal
- Singapore
- Taiwan
- Thailand
- Turkey

NTCK18AA Central Office Trunk Card (Italy)

Provides the interface to up to eight analog Central Office (CO) trunks.

The NTCK18AA Central Office Trunk card:

- is equipped with eight trunk units
- supports internal 12 kHz periodic pulse metering (PPM)
- allows the trunk type to be configured on a per unit basis
- allows individual units or the entire board to be disabled by software
- provides software-selectable A-Law or µ-Law companding
- indicates self-test status during an automatic or manual self-test
- provides card identification for auto-configuration and for determining the serial number and firmware level of the card
- converts transmission signals from analog to digital and from digital to analog
- supports the old and new Italy loss plans by providing a software-selectable loss plan
- provides adjustable transmission pads for long or short line operation
- provides termination and transhybrid balance impedance to match the Italian complex impedance network
- provides direct reporting of periodic pulse metering (PPM) pulses to software in either buffered or unbuffered format.
- supports loop start signaling
- supports busy tone detection and supervision on a per unit basis

The NTCK18AA is used in Italy.

NTCK18DA Central Office Trunk Card (India)

Provides the interface to up to eight analog Central Office (CO) trunks.

The NTCK18DA Central Office Trunk card:

- is equipped with eight trunk units
- supports internal 16 kHz periodic pulse metering (PPM)
- allows the trunk type to be configured on a per unit basis
- allows individual units or the entire board to be disabled by software
- provides software-selectable A-Law or μ-Law companding
- indicates self-test status during an automatic or manual self-test
- provides card identification for auto-configuration and for determining the serial number and firmware level of the card
- converts transmission signals from analog to digital and from digital to analog
- supports the old and new Italy loss plans by providing a software-selectable loss plan
- provides adjustable transmission pads for long or short line operation
- provides termination and transhybrid balance impedance to match the Italian complex impedance network
- provides direct reporting of periodic pulse metering (PPM) pulses to software in either buffered or unbuffered format.
- supports loop start signaling
- supports busy tone detection and supervision on a per unit basis

The NTCK18DA is used in India.

NTCK22AA Direct Inward Dial Trunk Card (Italy)

Provides the interface to up to eight analog DID/TIE trunk lines.

Each NTCK22AA Trunk card:

- converts transmission signals from analog to digital and from digital to analog for up to eight audio paths
- supports the old and new Italian loss plans

- supports 2-wire loop dial repeating for tie trunk application
- provides software-selectable A-Law and μ-Law companding
- provides faceplate LED for board status and self-test pass
- provides disabling of individual units or the entire board
- provides switch-selectable transhybrid balance impedance to match 600 ohm Italian complex impedance
- provides the correct signaling impedance and voltages to operate with the Italian central office
- offers full transmission compliance to current Italian technical requirements

The NTCK22AA is used in Italy.

NTCK24AA Central Office Trunk Card (Portugal)

Provides the interface to up to eight analog Central Office (CO) trunks.

The NTCK24AA Central Office Trunk card:

- is equipped with eight trunk units
- supports internal 12 kHz periodic pulse metering (PPM)
- allows the trunk type to be configured on a per unit basis
- allows individual units or the entire board to be disabled by software
- provides software-selectable A-Law or μ-Law companding
- indicates self-test status during an automatic or manual self-test
- provides card identification for auto-configuration and for determining the serial number and firmware level of the card
- converts transmission signals from analog to digital and from digital to analog
- supports the old and new Italian loss plans by providing a software-selectable loss plan
- provides adjustable transmission pads for long- or short-line operation

- provides termination and transhybrid balance impedance to match the Italian complex impedance network
- provides direct reporting of periodic pulse metering (PPM) pulses to software in either buffered or unbuffered format.
- supports loop start signaling
- supports busy tone detection and supervision on a per unit basis

The NTCK24AA is used in Portugal.

NTCK90 802.11 Wireless Controller Card

Provides control functions and a primary interface to the 802.11 Wireless (formerly known as Companion) Radio card (CMRC) and 802.11 Wireless Line (CMLC) card. It also provides ports to base stations.

The 802.11 Wireless Controller card (CMCC) must be in the left-most position in the IPE Module with respect to the expansion CMRC and CMLC cards. All 802.11 Wireless cards must be installed contiguously in the module.

Each CMCC requires an NTCK94 ROM card that is installed onto the CMCC card.

NTCK91 802.11 Wireless Radio Card

Provides interfaces for 16 802.11 Wireless base stations and 16 users. Up to 15 cards can be supported.

NTCW00AB Nortel Networks Integrated DECT (DECT) Mobility Card (DMC8)

Provides an interface to base stations. A DMC8 supports up to eight base stations.

NTCW01AB DECT Mobility Card-Expander (DMC8-E)

Provides the same functions as an NTCW00. The DMC8-E has additional circuitry required to regenerate faceplate cable signals when a system

contains more than eight NTCW00 cards. The DMC8-E also connects two IPE shelves or cabinets in a DECT system.

NTDK16BA 48-port Digital Line Card

Provides an interface to a maximum of 48 digital integrated voice and 48 data ports. It is functionally equivalent to three NT8D02 Digital Line Cards.

NTDK22AA Single-port Fiber Expansion Daughterboard

Provides non-IP connectivity between main and expansion NTAK11 Cabinets, or between the NTDK91 Chassis and NTDK92 Chassis Expanders, up to 10 meters apart. The NTDK22 mounts on the NTDK20 SSC in the main NTAK11 Cabinet or NTDK91 Chassis.

NTDK23BA Fiber Receiver Card

Provides non-IP connectivity between main and expansion NTAK11 Cabinets, or between the NTDK91 Chassis and NTDK92 Chassis Expanders. The NTDK23 mounts in the expansion NTAK11 Cabinet or NTDK92 Chassis Expander.

NTDK24AB Expansion Daughterboard

Allows the connection of main NTAK11 Cabinets to expansion NTAK11 Cabinets. The NTDK24 is used when the expansion cabinet is within 10m (33 ft) of the main cabinet. It connects with A0618443 plastic fiber-optic cables.

NTDK25BB Fiber Receiver Card

Provides fiber connectivity between main and expansion NTAK11 Cabinets, or between the NTDK91 Chassis and NTDK92 Chassis Expanders.The NTDK25 is used when the expansion NTAK11 Cabinet or NTDK92 Chassis Expander is between 10 m (33 ft.) and 3 km (1.8 mi.) of the main NTAK11 Cabinet or NTDK91 Chassis. It connects to Multi-Mode glass fiber-optic cable.

NTDK26AA Backwards Compatible Daughterboard PCB Assembly

Used on Small Systems.

NTDK79AA Expansion Daughterboard

Allows the connection of main NTAK11 Cabinets to expansion NTAK11 Cabinets. The NTDK24 is used when the expansion cabinet is within 10m (33 ft) of the main cabinet. It connects to Single Mode glass fiber-optic cable.

NTDK80BA Fiber Receiver Card

Provides fiber connectivity between main and expansion NTAK11 Cabinets, or between the NTDK91 Chassis and NTDK92 Chassis Expanders.The NTDK25 is used when the expansion NTAK11 Cabinet or NTDK92 Chassis Expander is more than 3 km (1.8 mi.) from the main NTAK11 Cabinet or NTDK91 Chassis. It connects to Single-Mode fiber-optic cable.

NTDK83AA Dual-port 100BaseT IP Expansion Daughterboard

Provides IP connectivity. It is mounted on the NTDK20 SSC.

The Call Server ships with an NTDK83, which supports two chassis or cabinets. To expand beyond two systems, use the NTDU19 Expansion Kit.

NTDK84AA Dual-port Fiber Expansion Daughterboard

Provides non-IP connectivity between main and expansion NTAK11 Cabinets, or between NTDK91 Chassis and NTDK92 Chassis Expanders. The NTDK84 mounts on the NTDK20 SSC in the main NTAK11 Cabinet or NTDK91 Chassis.

NTDK85AA Expansion Daughterboard

Same features as the NTDK24 except that it can interface with two expansion cabinets. The NTDK85 mounts on the NTDK20 SSC in the expansion NTAK11 Cabinet.

NTDK99AA Single-port 100BaseT IP Expansion Daughterboard

Provides IP connectivity. It is mounted on the NTDK20 SSC.

NTDR68AD Single Reach Line Card

Meets CSPR B 14.0.

NTDR69AD Nortel Networks Remote Gateway 9150

Enables remote users to access central office features and functionality over the IP WAN. The NTDR69 is installed at the remote site and uses 10BaseT Ethernet or ISDN BRI connection to communicate with the central office. The NTDR69 supports a maximum of 32 digital telephones.

For more information, refer to *Remote Gateway 9150: Installation and Administration Guide (555-8421-215)*.

NTDR70AD Reach Line Card (32-port)

Used in Large Systems.

NTDR71AD Reach Line Card (32-port)

Used in Small Systems and CS 1000S systems.

NTDU19AA Expansion Kit

Provides support for two additional chassis systems. The kit contains an additional NTDK82 Dual-port IP Daughterboard and two NTDU0606 Cat-5 Ethernet cables.

NTDU40 Media Card

The NTDU40 is available in two versions:

- NTDU40AA 8 ports
- NTDU40BA 32 ports

NTDU41 Voice Gateway Media Card

The NTDU41 is available in five versions:

- NTDU41AB 8 ports, IP Line 3.0
- NTDU41BB 32 ports, IP Line 3.0
- NTDU41CA 32 ports, IP Line 3.0
- NTDU41DA 32 ports, IP Line 3.1
- NTDU41DB 8 ports, IP Line 3.1

NTRA02AA Extended Universal Trunk Card (China)

Provides interface to up to eight trunk facilities, with Busy Tone Detection.

The NTRA02AA is used in China.

NTRA03AA Extended E&M TIE Trunk Card (China)

The NTRA03AA is used in China.

NTRA04AA Flexible Message Waiting Line Card (China)

The NTRA04AA is used in China.

NTRA05AA Flexible Analog Line Card (China)

Provides an interface for up to 16 analog (500/2500-type) telephone lines.

The NTRA05AA is used in China.

NTRA06 Off-premises Station (OPS) Analog Line Card (China)

Provides full-duplex interfaces to connect off-premises terminals to the main system. Each interface provides lightning protectors for external line connection to the station.

The NTRA06 comes in three versions:

- NTRA06AA — with eight ports
- NTRA06AB — with eight ports, Line Supervision, and Battery Reversal
- NTRA06BA — with 16 ports

The NTRA06 is used in China.

NTRA08 Flexible Analog Line Card (China)

The NTRA08 comes in the following versions:

- NTRA08AA — with K20 protection and battery reversal
- NTRA08AB — with K20 protection only

The NTRA08 is used in China.

NTRA10AA Extended Universal Trunk Card (China)

Provides interface to up to eight trunk facilities, with Busy Tone Detection.

The NTRA10AA is used in China.

NTRA11AA Extended Digital Tone Receiver Card (China)

The NTRA11AA is used in China.

NTRA12AA Central Office Trunk Card (China)

Supports eight analog Central Office (CO) trunks.

The NTRA12AA is used in China.

NTRB37AA Extended Universal Trunk Card (Hong Kong)

Provides interface to up to eight trunk facilities.

The NTRB37AA is used in Hong Kong.

NTTK01AA Single-port 100BaseF IP Expansion Daughterboard

Provides IP connectivity; mounts on the NTDK20 SSC.

NTTK02AA Dual-port 100BaseF IP Expansion Daughterboard

Provides IP connectivity; mounts on the NTDK20 SSC.

NTWE07AA ITG 2.0 Pre-programmed Q.SIG DCI PC Card

Required to add a new ITG 2.0 trunk node.

NTVQ01 Media Card

The NTVQ01 is available in two versions:

- NTVQ01AB — 8-port card with one on-board DSP; used for Recorded Announcement (RAN) applications; replaces NTVQ01AA
- NTVQ01BB — 32-port card with four on-board DSPs; used for IP Line and IP Trunk applications; replaces NTVQ01AB for these applications

NTVQ80AA D-Channel Kit for ITG 2.1

DCHIP kit for Media Card 32-port trunk card. The kit includes the following:

- NTWE07 C7LIU D-Channel PC Card
- NTMF29 DCHIP to SDI card assembly cable
- NTWE04 Inter-cabinet cable
- Support Bracket Retaining Cable and screws

NTVQ81AA ITG 1.0 to ITG 2.1 Upgrade Kit

Includes eight Licenses.

NTVQ83AA ITG EMC Shielding Kit

Part of the NTVQ91 IP Trunk (3.0 and later) Small and Large Systems 32-port package with DCHIP.

NTZB96AC Integrated Conference Bridge Card Upgrade Kit

Upgrade kit for upgrading NT5D51 Integrated Conference Bridge Card from Meridian Integrated Conference Bridge Release 3.0 to Nortel Networks Integrated Conference Bridge Release 4.0.

Cables

Contents

This section contains information on the following topics:

Introduction

This chapter identifies cables supported for use in Meridian 1 and CS 1000 systems.

Intramodule and Intermodule Cables

There are two types of cables in a Meridian 1 or CS 1000 system:

- Intramodule cables connect circuit cards within a module, or they connect to the I/O panels at the rear of the module. Intramodule cables are not shielded. Bail locks or screws are generally used on the connectors to prevent accidental removal.

- Intermodule cables are routed between modules. These cables are used primarily for interconnecting the following subsystems:
  - — CPU to CPU
  - — CPU to network
  - — network to network
  - — network to peripheral equipment

Equipment: A0000000 – A9999999

A0378652 Modem Eliminator Connector F-M (Null Modem)

Connects SDI ports to equipment such as administration/maintenance terminals (TTYs) and modems.

A0379412 Power Cord 220V

Connects the NTDK91 Chassis and NTDK92 Chassis Expander to a commercial 220 V AC power source.

Used in North America, Caribbean and Latin America (CALA), and the Middle East.

Length— 3 m (9 ft. 10 in.)

A0381016 Modem Eliminator Connector F-F (Null Modem)

Connects SDI ports to equipment such as TTYs and modems.

A0601396 Modem Eliminator Adapter (Null Modem)

This cable has two DB-25 connectors.

A0601397 Modem Eliminator Adapter (Null Modem)

This cable has a DB-25 female and a DB-25 male connector.

A0601464 Nullmodem Maintenance Cable

Connects the terminal to the NT5D51 Integrated Conference Bridge card using the Ethernet Adapter card DB-9 male connector.

This cable has a DB-9 female and a DB-25 male connector. No additional null modem is required.

A0618443 Fiber-optic Plastic Cable

Connects main and expansion NTAK11 Cabinets, when the expansion NTAK11 Cabinet is within 10 m (33 ft.) of the main NTAK11 Cabinet.

A0632902 Fiber-optic (Multi-mode) Cable

Used with the NTDK22 Single-port Fiber Expansion Daughterboard and the NTDK84 Dual-port Fiber Expansion Daughterboard.

A0634495 Local Fiber Remote Multi-IPE Cable

Joins the NT8D92 backplane cable at the I/O panel to a Fiber Remote Superloop Network card using its 24-pin Centronics connector. The cable connects to a Fiber Remote unit within 30 feet of a system local site by its 37-pin D Shell connector. One cable is required for each Fiber Remote Superloop card.

Length—9.1 m (30 feet (ft.))

A0634496 Remote Fiber Multi-IPE Cable

Joins the NT8D92 backplane cable at the I/O panel to a Fiber Remote Superloop Network card using its 24-pin Centronics connector. The cable connects to a Fiber Remote unit within 30 feet of a remote IPE cabinet via its 37-pin D Shell connector. One cable is required for each Fiber Remote Superloop card.

Length—9.1 m (30 ft.)

A0660711 25DB Adapter Cable

Converts gender of 25DB connector.

Length—5 cm (2 in.)

A0814961 AC Power Cord

Used in Argentina.

A0817052 MT-RJ to ST Cable

Connects the main and expansion NTAK11 Cabinets using 100BaseF IP daughterboards.

Length—5 m (16 ft. 6 in.)

A0817055 MT-RJ to MT-RJ Cable

Connects the main and expansion NTAK11 Cabinets using 100BaseF IP daughterboards.

Length—10 m (33 ft.)

A0852632 Telephone to 9D Sub and Twin RJ45 Adaptor

Connects 50-pin key telephone to 9D Sub; shielded.

Equipment: DY0000000 – DY9999999

DY4311015 Power Splitters

Provides power from the CAT-5 line cable when IP Phones are powered using the Power over LAN Hub^{TM} (closet power).

Equipment: NE-000 – NE-999

NE-A25 Connector Cable

25-pair, 26 AWG standard distribution cable connectorized at one end. Extends PE termination from PE shelves and transfer unit terminations to the cross-connecting terminal or Main Distribution Frame (MDF).

Lengths—Available in lengths of 7.6 to 61.0 m (25 to 200 ft.) in increments of 7.6 m (25 ft.)

Equipment: NPS00000 – NPS99999

NPS50843-7L01 Interboard Faceplate Cable Harness

Used with 802.11 Wireless radio and line cards in IPE Modules. Connects two adjacent cards over the faceplate connectors. A cable is always shipped with an NTCK91 802.11 Wireless Meridian Radio Card (CMRC) and an NTCK93 802.11 Wireless Meridian Line Card (CMLC).

Length—5 cm (2 in.)

NPS50843-7L02 Bypass Faceplate Cable Harness

Used with 802.11 Wireless radio and line cards in IPE Modules. Bypasses a faulty CMRC or CMLC and facilitates removal of the faulty card without disrupting traffic on other 802.11 Wireless cards in the module.

Length—30 cm (1 ft.)

NPS90781-20L01 CMRC Maintenance Cable

Connects two Companion Meridian Radio Card (CMRC) faceplate connectors for maintenance purposes. The cable has designated left and right connectors and care must be taken to plug the right connector into the right-hand CMRC and the left connector into the left-hand CMRC.

Length—60 cm (2 ft.)

NPS90781-20L02 CMLC Maintenance Cable

Connects two COMPANION Meridian Line Card (CMLC) faceplate connectors for maintenance purposes. The cable has designated left and right connectors and care must be taken to plug the right connector into the right-hand CMLC and the left connector into the left-hand CMLC.

Length—60 cm (2 ft.)

Equipment: NT1A000 – NT9Z999

NT1P64AA Fiber-optic Patchcord

Connects the NT1P61 Fiber Superloop Network card Fiber-optic Packlet to the I/O panel fiber-optic connector. The cable provides connections to the fiber-optic span.

Length—1.2 m (4 ft.)

NT1P75 Fiber-optic Patchcord

Connects the NT1P62 Fiber Peripheral Controller card Fiber-optic Packlet to the I/O panel fiber-optic connector. The cable provides connections to the fiber-optic span.

Vintages:

- NT1P75AA Single-mode
- NT1P75BA Multi-mode

Length—1.2 m (4 ft.)

NT1P76AA Fiber Superloop Network Card to I/O Panel Cable

Connects the NT1P61 Fiber Superloop Network Card faceplate connector to the I/O panel. The cable provides a connector to an SDI port and to system monitoring functions.

Length—1.2 m (4 ft.)

NT1P78AA Fiber Peripheral Controller Card to I/O Panel Cable

Connects the backplane connector behind the NT1P62 Fiber Peripheral Controller card faceplate connector to the I/O panel. The cable provides a connector to a TTY port and to the system monitor.

Length—1.2 m (4 ft.)

NT1P79 EOI to Fiber Management Optical Cable

Vintages:

- NT1P79AA Single-mode
- NT1P79BA Multi-mode

NT1P85AA External Alarm Cable

Connects external alarms to the CB-15HD female Alarm connector on the NT7R60AA Carrier/Alarm Panel.

NT1R03AA Shielded 4-port with Ethernet Cable

Length—79 cm (31 in.)

NT1R03BA Shielded 4-port Cable

Length—76 cm (30 in.)

NT1R03CA Shielded LAM Extension Cable

Length—0.6 m (2 ft.)

NT1R03Dx 25DB M-M Extension Cable

Lengths—

- NT1R03DB 0.6 m (2 ft.)
- NT1R03DC 1.2 m (4 ft.)
- NT1R03DF 2.1 m (10 ft.)

- NT1R03DP 7.6 m (25 ft.)
- NT1R03DV 13.7 m (45 ft.)

NT1R03Ex 25DB M-F Extension Cable

Lengths—

- NT1R03EB 0.6 m (2 ft.)
- NT1R03EC 1.2 m (4 ft.)
- NT1R03EF 2.1 m (10 ft.)
- NT1R03EP 7.6 m (25 ft.)
- NT1R03EV 13.7 m (45 ft.)

NT1R03HF Max to IPE Modem Cable

Length—2.1 m 10 ft.)

NT1R04AA Clock Controller to I/O Panel Cable

Connects the clock controller card to the inside of the I/O panel in the Core Module or to the Network Module I/O panel for Option 81C. Also used from the clock controller junctor connector to the connector housing.

Length—1.2 m (4 ft.)

NT1R05AA Intercabinet Module Cable

Connects the I/O panel on the module to the connector housing.

Length—4.9 m (16 ft.)

NT2K2AA Nullmodem Cable

Connects an 802.11 Wireless diagnostic PC terminal to a system. The null modem cable is used when the PC is connected to a Large System using an external modem over the Remote Access Device (RAD).

Lengths—

- A0398761 3.0 m (10 ft.)
- A0398762 7.6 m (25 ft.)

NT2K91AA RS-232 Cable

Connects an 802.11 Wireless diagnostic PC terminal to a system. This cable is used when the PC is connected to Meridian 1 using an internal modem located in the Remote Access Device (RAD).

Lengths—

- A0399143 3.0 m (10 ft.)
- A0399144 7.6 m (25 ft.)

NT4N73AA Cable Kit

Used for upgrading an NT4N43 MMDU to an NT4N43 MMDU.

NT4N88AA CP PII to I/O Panel DTE Cable

Extends CP PII card COM 1 port to I/O panel J21 for DTE (terminal) access.

Length—1.2 m (4 ft.)

NT4N88BA CP PII to I/O Panel DCE Cable

Extends CP PII card COM 1 port to I/O panel J25 for DCE (modem) access.

Length—1.2 m (4 ft.)

NT4N89AA System Utility Pack to System Manager Cable

Connects System Utility Pack to System Manager.

Length—0.9 m (3 ft.)

NT4N90BA Ethernet Cable Assembly

Extends CP PII card LAN 1 port to I/O panel J31 for LAN access.

Length—1.2 m (4 ft.)

NT4N96AA cCNI to I/O Panel Cable

Length—0.6 m (2 ft.)

NT4R20 RSM Fan-out Cable

Lengths—

- NT4R20AA 7.6 m (25 ft.)
- NT4R20AB 15.2 m (50 ft.)

NT5D16BATrunk Tip/Ring Cable

A 100¾ cable for equipped with an I/O filter panel. Connects the 9-pin D-type TRK port on the NT5D12AH Dual DTI/PRI (DDP) card faceplate to the I/O filter.

Length—2.5 m (8 ft.)

NT5D19AA PC Maintenance Cable

Connects the terminal to the 50-pin tip/ring connector on the IPE Module I/O panel. This cable requires a null modem for proper connection to the MMI terminal.

Length—0.9 m (3 ft.)

NT5D35AA Interface Cable

A twisted pair 120 Ohm Line-side E1 interface cable.

Length—0.6 m (2 ft.)

NT5D50AA SCSI Extension Cable

A ribbon cable with a female connector and a male SCSI connector.

Connects the SCSI ribbon cable on the IODU/C card CD-ROM drive to the floppy drive A connector on the MDU/SMDU. When connected, the red edge should face towards the bottom of the IODU/C card (toward the edge of the card).

Length—0.9 m (3 ft.)

NT5D85AA Local Mini-Carrier Interface (LMI) cable assembly

Connects the NT5D64 or NT5D68 Local Mini-Carrier Interface card with the MMI, SDI, Alarm and T1 Carrier links at the local site in a Local Mini-Carrier Remote system.

NT5D86AA Local Mini-Carrier Extender (LMI/LMX) cable assembly

Connects the NT5D64 or NT5D68 Local Mini-Carrier Interface card with up to three NT5D63 or NT5D69 Local Mini-Carrier Extender cards (respectively) at a remote site in a Local Mini-Carrier Remote system.

NT5D87AA Remote Mini-Carrier Interface (RMI) cable assembly

Connects the NT5D67 Remote Mini-Carrier Interface card with the MMI, SDI, Alarm and T1 Carrier links at the remote site in a Local Mini-Carrier Remote system.

NT5K53AA Cable Assembly (UK)

Connects the system to the cross-connect terminal.

This cable consists of 25-pair, 24 AWG tinned copper conductors. The cable has a 90 degree, 25-pair D-type connector on one end and three Krone Strips (237A) on the other. These cables utilize a custom compounded jacketing that meets the requirements for specific PBX contracts in the UK.

Length—15.2 m (50 ft.)

NT5K54AA Cable Assembly (UK)

Connects the system to the cross-connect terminal.

This cable consists of 25-pair, 24 AWG tinned copper conductors. The cable has a 90 degree, 25-pair D-type connector on one end and three Krone Strips (237A) on the other. These cables utilize a custom compounded jacketing that meets the requirements for specific PBX contracts in the UK.

Length—7.6 m (25 ft.)

NT5K63AA Cable Assembly (UK)

Connects the system to the cross-connect terminal.

This cable consists of 25-pair, 24 AWG tinned copper conductors. The cable has a 90 degree, 25-pair D-type connector on one end and three Krone Strips (237A) on the other. These cables utilize a custom compounded jacketing that meets the requirements for specific PBX contracts in the UK.

Length—29.5 m (96 ft.)

NT5K64AA Cable Assembly (UK)

Connects the system to the cross-connect terminal.

This cable consists of 25-pair, 24 AWG tinned copper conductors. The cable has a 90 degree, 25-pair D-type connector on one end and three Krone Strips (237A) on the other. These cables utilize a custom compounded jacketing that meets the requirements for specific PBX contracts in the UK. They are low smoke and fume, non-halogenated (LSF, non-hal) cables.

Length—7.6 m (25 ft.)

NT5K65AA Cable Assembly (UK)

Connects the system to the cross-connect terminal.

This cable consists of 25-pair, 24 AWG tinned copper conductors. The cable has a 90 degree, 25-pair D-type connector on one end and three Krone Strips (237A) on the other. These cables utilize a custom compounded jacketing that meets the requirements for specific PBX contracts in the UK. They are low smoke and fume, non-halogenated (LSF, non-hal) cables.

Length—15.2 m (50 ft.)

NT5K66AA Cable Assembly (UK)

Connects the system to the cross-connect terminal.

This cable consists of 25-pair, 24 AWG tinned copper conductors. The cable has a 90 degree, 25-pair D-type connector on one end and three Krone Strips (237A) on the other. These cables utilize a custom compounded jacketing that meets the requirements for specific PBX contracts in the UK. They are low smoke and fume, non-halogenated (LSF, non-hal) cables.

Length—29.5 m (96 ft.)

NT5K79AA Cable Assembly (UK)

Connects the console to the cross-connect terminal.

This cable consists of 25-pair, 24 AWG tinned copper conductors. The cable has a 90 degree, 25-pair D-type connector with two locking screws at one end and free-ended at the other end. These cables utilize a custom compounded jacketing that meets the requirements for specific PBX contracts in the UK. They are low smoke and fume, non-halogenated (LSF, non-hal) cables.

Length—15.2 m (50 ft.)

NT5K80AA Cable Assembly (UK)

Connects the console to the cross-connect terminal.

This cable consists of 25-pair, 24 AWG tinned copper conductors. The cable has a 90 degree, 25-pair D-type connector with two locking screws at one end and free-ended at the other end. These cables utilize a custom compounded

jacketing that meets the requirements for specific PBX contracts in the UK. They are low smoke and fume, non-halogenated (LSF, non-hal) cables.

Length—30.5 m (100 ft.)

NT5K81AA Cable Assembly (UK)

Connects the console to the cross-connect terminal.

This cable consists of 25-pair, 24 AWG tinned copper conductors. The cable has a 90 degree, 25-pair D-type connector with two locking screws at one end and free-ended at the other end. These cables utilize a custom compounded jacketing that meets the requirements for specific PBX contracts in the UK. They are low smoke and fume, non-halogenated (LSF, non-hal) cables.

Length—91.4 m (300 ft.)

NT6D4408 NVP Cable

Flat ribbon, internal daisy-chain cable assembly connecting the NVP on Meridian Mail systems. The cable assembly has two DR-36 and four 25-DIN connectors.

Length—84 cm (33 in.)

NT6D4410 CSL Cable

Flat ribbon cable assembly connecting the AML to the CSL I/O DVS bus in a Meridian Mail system. The cable assembly has DB-25 connectors.

Length—84 cm (33 in.)

NT6D4411 DVS Bus Node-to-node Cable

Flat ribbon cable assembly connecting the DVS bus on a node-to-node daisy-chain configuration in a Meridian Mail system. The cable assembly has four 60-pin IDC connectors.

Length—145 cm (57 in.)

NT6D4412 DVS Bus Internal Cable

Flat ribbon cable assembly flat ribbon used with the DVS bus in Meridian Mail.

Length—3.6 m (11 ft.)

NT6D4415 DVS Bus HABC Terminator

Length—23.3 m (76 ft.)

NT6D4416 DVS Bus Node 2-to-3 Cable

Length—1.8 m (6 ft.)

NT6D54AA Rectifier Wiring Kit

Used with the cable between the NT8D22 System Monitor and a QBL15 Power Distribution Box.

NT6P0110 4-port RS-232 Cable

Length—38 cm (15 in.)

NT7D61 SDI I/O Cable

Lengths—

- NT7D61EB 0.6 m (2 ft.)
- NT7D61ED 1.8 m (6 ft.)
- NT7D61EF 3.0 m (10 ft.)
- NT7D61EL 7.6 m (25 ft.)
- NT7D61ET 9.1 m (30 ft.)
- NT7D61EV 13.7 m (45 ft.)

NT7D89 CP to I/O Panel RS-232 Cable

Lengths—

- NT7D89AA 61 cm (24 in.)
- NT7D89CA 33 cm (13 in.)

NT7D90DA IOP to I/O Panel Ethernet Cable

Connects the Ethernet port on the CP card to the I/O panel in the Core and Core/Network Modules. Part of NT5D21 and NT6D60 modules.

Length—36 cm (14 in.)

NT7R67BA Local Carrier/Monitor Cable Assembly

Connects the NT7R51 Local Carrier Interface Card to the I/O panel and to the T1 carrier span.

Length—1.2 m (4 ft.)

NT7R67CA Local Maintenance/Clock Cable Assembly

Connects the NT7R51 Local Carrier Interface Card to the I/O panel and to the clock controller card.

Length—120-cm (4-ft.) and 60-cm (2-ft.) branches

NT7R68AA Remote Carrier/Alarm Cable Assembly

Used in IPE Modules.

Length—1.1 m (4 ft.)

NT8D40AA AC Power Cord

Connects to an IG-L6-30 30-amp receptacle and conducts AC power into the pedestal for AC-powered system.

Length—2.7 m (9 ft.)

NT8D40AM Module to Module Power Harness

Used in AC modules to conduct the input AC power and control signals vertically through the column. It is constructed in a modular form and can be disconnected when necessary to allow for the removal and/or replacement of modules.

NT8D46AA System Monitor Column Cable

Connects NT8D22 System Monitor signals vertically through the column.

Length—81 cm (32 in.)

NT8D46AB System Monitor Jumper Cable

Length—29 cm (11.25 in.)

NT8D46AD System Monitor Quad Serial Data Interface Cable

Connects an SDI card to the NT8D22 System Monitor. Replaces the NT8D46AA cable when the SDI card is in the same column as the system monitor.

Length—86/152 cm (34/60 in.)

NT8D46AG System Monitor to Extended SDI Cable

Connects the NT8D22 System Monitor to the NT8D41 SDI Paddleboard (use instead of the NT8D46AA cable).

Length—86 cm (34 in.)

NT8D46AJ UPS Alarm Cable (AC)

Connects the NT8D22 System Monitor to a Best uninterruptible power supply (UPS). Used for UPS monitoring.

Length—13.8 m (45 ft.)

NT8D46AK UPS Alarm Cable (AC)

Length—13.8 m (45 ft.)

NT8D46AL System Monitor Serial Link Cable

Connects the NT8D22 System Monitor from one column to another.

Length—2.1 m (7 ft.)

NT8D46AN MDF to PFT Cable

Length—2.1 m (7 ft.)

NT8D46AP System Monitor Serial Link Cable

Connects the NT8D22 System Monitor from one column to another.

Length—7.6 m (25 ft.)

NT8D46AQ UPS Alarm Cable (AC)

Connects the NT8D22 System Monitor to an Exide uninterruptible power supply (UPS). Used for UPS monitoring.

Length—13.8 m (45 ft.)

NT8D46AS System Monitor Inter-CPU Cable

Connects the dual CPUs together for NT8D22 System Monitor functions. Replaces the NT8D46AA cable in both CPU modules.

Length—2.7 m (9 ft.)

NT8D46AU UPS Alarm Cable (AC)

Connects the NT8D22 System Monitor to an Alpha uninterruptible power supply (UPS). Used for UPS monitoring.

Length—13.8 m (45 ft.)

NT8D46AV System Monitor to Power Cabinet Cable (DC)

Alarm cable used on MFA150 Power System, MPP600 Power Plant, Power Cabinet, and NTWB16 Candeo Power System.

Length—9.7 m (32 ft.)

NT8D46AW System Monitor/QBL12 Cable (DC)

Alarm cable used on MFA150 Power System, MPP600 Power Plant, Power Cabinet, and NTWB16 Candeo Power System.

Length—9.7 m (32 ft.)

NT8D46BH System Monitor to MDF Cable

Connects the system monitor to the MDF when a power failure transfer unit (PFTU) is used.

Length—13.7 m (45 ft.)

NT8D46BV System Monitor to Power Cabinet Cable

Connects the NT8D22 System Monitor to the MFA150 Power System, MPP600 Power Plant, QCA13 Power Cabinet, and NTWB16 Candeo Power System.

Length—19.5 m (64 ft.)

NT8D46CV System Monitor to Power Cabinet Cable

Connects the NT8D22 System Monitor to the MFA150 Power System, MPP600 Power Plant, QCA13 Power Cabinet, and NTWB16 Candeo Power System.

Length—30.5 m (100 ft.)

NT8D46DH System Monitor to MDF Cable

Connects the System Monitor to the Main Distribution Frame (MDF).

Lengths—45.7 m (150 ft.)

NT8D46EH System Monitor to MDF Cable

Connects the System Monitor to the Main Distribution Frame (MDF).

Lengths—30.5 m (100 ft.)

NT8D73 Intercabinet Network Cable

Interconnects QPC414 Network Cards from Network Module to PE Module or local site RPE Module through the I/O panels.

Lengths—

- NT8D73AD 1.8 m (6 ft.)
- NT8D73AF 3.6 m (12 ft.)
- NT8D73AL 6.1 m (20 ft.)
- NT8D73AS 9.1 m (30 ft.)

NT8D74 Clock Controller to Junctor Cable

Connects clock controller to the junctor.

Lengths—

- NT8D74BC 1.2 m (4 ft.)

- NT8D74BD 1.8 m 6 ft.)
- NT8D74BE 2.4 m (8 ft.)
- NT8D74BF 3.0 m (10 ft.)
- NT8D74BJ 4.9 m (16 ft.)

NT8D75 Clock Controller to Clock Controller Cable

Interconnects clock controller cards.

Lengths—

- NT8D75BC 1.2 m (4 ft.)
- NT8D75BD 1.8 m (6 ft.)

NT8D79 PRI/DTI to Clock Controller Cable

Connects the PRI/DTI cards designated as primary and secondary clock references to the clock controller cards.

Lengths—

- NT8D79AB 0.6 m (2 ft.)
- NT8D79AC 1.2 m (4 ft.)
- NT8D79AD 1.8 m (6 ft.)
- NT8D79AE 2.4 m (8 ft.)
- NT8D79AF 3.0 m (10 ft.)

NT8D80 CPU Interface Cable

Connects the QPC441 3PE card in the Core/Network Module 0 to the QPC441 3PE card in the Core/Network Module 1.

Lengths—

- NT8D80BB 0.6 m (2 ft.)
- NT8D80BC 1.2 m (4 ft.)

- NT8D80BD 1.8 m (6 ft.)
- NT8D80BE 2.4 m (8 ft.)
- NT8D80BF 3.0 m (10 ft.)
- NT8D80BG 3.6 m (12 ft.)
- NT8D80BJ 4.8 m (16 ft.)
- NT8D80BL 6.1 m (20 ft.)
- NT8D80BP 7.6 m (25 ft.)
- NT8D80BZ 1.5 m (5 ft.)

NT8D81AA Backplane to I/O Cable

Connects a line card to the I/O panel. The ribbon cable is attached to the EMI filter.

Length—50 cm (20 in.)

NT8D82AD SDI to I/O Cable

Also includes the EMI filter. Connects the QPC841 4-Port SDI card to the I/O panel.

Length—1.8 m (6 ft.)

NT8D83AD PRI/DTI to I/O Cable

Also includes the EMI filter. Connects the T1 port on a DTI card to the I/O panel.

Length—1.8 m (6 ft.)

NT8D84AA SDI Paddleboard to I/O Cable

Also includes the EMI filter. Connects the NT8D41 SDI Paddleboard to the I/O panel.

Length—46 cm (18 in.)

NT8D85 Network to PE Cable

Connects the following:

- Changeover and Memory Arbitrator (CMA) card on CPU 0 to the CMA card on CPU 1 (CS 1000M SG, and Meridian 1 PBX 61C)
- QPC414 Network Card to PRI or DTI card

Lengths—

- NT8D85BB 0.6 m (2 ft.)
- NT8D85BC 1.2 m (4 ft.)
- NT8D85BD 1.8 m (6 ft.)
- NT8D85BE 2.4 m (8 ft.)
- NT8D85BF 3.0 m (10 ft.)
- NT8D85BJ 4.8 m (16 ft.)
- NT8D85BL 6.1 m (20 ft.)
- NT8D85BP 7.6 m (25 ft.)
- NT8D85BV 13.7 m (45 ft.)
- NT8D85BZ 1.5 m (5 ft.)

NT8D86BD Network to I/O Cable

Also includes the EMI filter. Connects the following to the I/O panel:

- QPC414 Network Card
- PRI or DTI card

Length—1.8 m (6 ft.)

NT8D88 Superloop Network Card to I/O Cable

Also includes the EMI filter. Connects the NT8D04 Superloop Network Card to the I/O panel.

Lengths—

- NT8D88AC 1.5 m (5 ft.)
- NT8D88AD 1.8 m (6 ft.)

NT8D90AF SDI Multi-port Extension Cable

An internal multi-port extension cable for the QPC841 4-Port SDI Card. Connects the I/O panel to the NT8D96 cable.

Length—3 m (10 ft.)

NT8D91 Superloop Network to Controller Cable

Used for internal cabling to connect the NT8D04 Superloop Network Card to the NT8D01 Controller Card.

Lengths—

- NT8D91AC 1.2 m (4 ft.)
- NT8D91AD 1.8 m (6 ft.)
- NT8D91AE 2.4 m (8 ft.)
- NT8D91AF 3.0 m (10 ft.)
- NT8D91AG 3.6 m (12 ft.)
- NT8D91AJ 4.9 m (16 ft.)
- NT8D91AP 7.6 m (25 ft.)
- NT8D91AT 10.6 m (35 ft.)
- NT8D91AV 13.8 m (45 ft.)

NT8D92AB Controller to I/O Cable

Connects the NT8D01 Controller Card to the I/O panel. Used only when the network loop is cabled externally.

Length—50 cm (20 in.)

NT8D93 SDI I/O to DTE/DCE Cable

Connects the NT8D41 SDI Paddleboard to DTE or DCE through the I/O panel.

Lengths—

- NT8D93AJ 4.9 m (16 ft.)
- NT8D93AW 14.6 m (48 ft.)

NT8D95 SDI I/O to DTE/DCE Cable

Connects ports on the QPC841 4-Port SDI card to DTE or DCE through the I/O panel:

Lengths—

- NT8D95AJ (male-to-male) 4.9 m (16 ft.)
- NT8D95BJ (male-to-female) 4.9 m (16 ft.)
- NT8D95AT (male-to-male) 10.3 m (34 ft.)
- NT8D95BT (male-to-female) 10.3 m (34 ft.)
- NT8D95AW (male-to-male) 14.6 m (48 ft.)
- NT8D95BW (male-to-female) 14.6 m (48 ft.)

NT8D96AB SDI Multi-port Cable

Three-way cable used with the QPC841 Quad Serial Data Interface Card. Connects external terminal equipment to the I/O panel. Connects the PRI or DTI card to the MDF through the I/O panel.

Length—0.6 m (2 ft.)

NT8D97AX PRI/DTI I/O to MDF Cable

This cable connects the PRI/DTI card to the MDF via the I/O connector panel.

Length—15.2 m (50 ft.)

NT8D98 Intercabinet Network Cable

Interconnects NT8D04 Superloop Network Cards from Network Module to IPE Module through the I/O panel.

Lengths—

- NT8D98AD 1.8 m (6 ft.)
- NT8D98AF 3.6 m (12 ft.)
- NT8D98AL 6.1 m (20 ft.)
- NT8D98AS 9.1 m (30 ft.)
- NT8D98AT 11.5 m (38 ft.)

NT8D99 CPU or Network to Network Cable

Interconnects NT8D35 Network Modules in a full group configuration. Connects to backplane connector A, B, C, D, or E (therefore, it is also known as the ABCDE cable).

Lengths—

- NT8D99AB 0.6 m (2 ft.)
- NT8D99AC 1.2 m (4 ft.)
- NT8D99AD 1.8 m (6 ft.)
- NT8D99BD 1.8 m (6 ft.)

NT9D89 CNI-3 to 3PE/EMSI to MDU Cable

Lengths—

- NT9D89CA 2.4 m (8 ft.)
- NT9D89DA 3.0 m (10 ft.)
- NT9D89EA 3.7 m (12 ft.)
- NT9D89FA 7.6 m (25 ft.)
- NT9D89GA 15.2 m (50 ft.)

NT9J93AD DTI Echo Canceler to I/O Cable

Connects the PRI or DTI echo canceler port to the I/O panel.

Length—1.8 m (6 ft.)

Equipment: NTAA000 – NTZZ999

NTAG01AA Cable Assembly (UK)

Connects the console to the cross-connect terminal.

This cable consists of 25-pair, 24 AWG tinned copper conductors. The cable has a 90 degree, 25-pair D-type connector with two locking screws at one end and free-ended at the other end. These cables use a custom compounded jacketing that meets the requirements for specific PBX contracts in the UK.

Length—0.5 m (20 in.)

NTAG02AA Cable Assembly (UK)

Connects the console to the cross-connect terminal.

This cable consists of 25-pair, 24 AWG tinned copper conductors. The cable has a 90 degree, 25-pair D-type connector with two locking screws at one end and free-ended at the other end. These cables use a custom compounded jacketing that meets the requirements for specific PBX contracts in the UK.

Length—91.4 m (300 ft.)

NTAG81AA Audio Cable

Connects external analog music source or a recording device to the 3.5 mm Audio Jack on the NTAG36 Integrated Recorded Announcer card faceplate. This is a splitter cable that provides the audio input signal on one connector and the audio output signal on the other connector.

NTAG81BA Maintenance Extender Cable

Extends the NTAG81CA PC Maintenance cable or the NTAG81DA VLAN Maintenance cable when connecting a terminal to the NTAG36 Integrated Recorded Announcer card. It is terminated with one 9-pin D-sub male and one 9-pin D-Sub female connector.

Length—5 m (16.4 ft.)

NTAG81CA PC Maintenance Cable

Connects the terminal to the NTAG36 Integrated Recorded Announcer card maintenance port on the faceplate. It is terminated with an 8-pin Mini-DIN male connector and a 9-pin D-Sub female connector.

Length—3 m (10 ft.)

NTAG81DA VLAN Maintenance Cable

Connects the Mini-DIN maintenance connector on the NTAG36 Integrated Recorded Announcer faceplate to a terminal or to an adjacent Integrated Recorded Announcer to form a LAN daisy chain. It is terminated with an 8-pin Mini-DIN connector on the common side and two 9-pin D-Sub connectors, one male and one female, on the split side.

Length—3 m (10 ft.)

NTAK19FB SDI Cable

Four-port SDI cable used with the NTAK02 circuit card.

NTAK0410 Carrier Remote DC Power Cable

Connects the cabinet to a reserve battery power supply or to a DC power source through the NTAK28 Junction Box.

Length—1.8 m (6 ft.)

NTAK0420 DC Power Cable

Connects an NTAK11 Cabinet to a reserve battery power supply, or to a DC power source with an NTAK28 Junction Box.

NTAK1104 PFTU/Console Power Cable

Connects a PFTU to an NTAK11 Cabinet, NTDK91 Chassis, or NTDK92 Chassis Expander.

NTAK1108 SDI Cable Assembly

Connects SDI ports and terminals.

NTAK1118 SDI Cable

Connects SDI ports and terminals.

NTAK1204 Expansion Cabinet Cable Assembly

Connects the main cabinet to the expansion unit in the small Carrier Remote IPE cabinet.

Length—216 cm (85 in.)

NTAK7506 Large Battery Cable Assembly

For 2- to 4-hour Battery Backup Unit.

NTAK9204 OPS Protection Cable Assembly

DE9M wire used with NTAK92 4-line/circuit external protection unit on Small Systems.

Length—3.1 m (10 ft.)

NTBK04AA 1.5 Mbit DTI/PRI T1 Cable

Length—6.1 m (20 ft.)

NTBK04AB 1.5 Mbit Carrier/Clock Cable

Length—6.1 m (20 ft.)

NTBK04BA 1.5 Mbit DTI/PRI Carrier Cable

Length—1.8 m (6 ft.)

NTBK04CA 1.5 Mbit DTI/PRI Carrier Cable

Connects the NTAK09 1.5 Mbit DTI/PRI card to the Channel Server Unit (CSU). The NTBK04 carries Tx and Rx pairs to a standard 5-pin connector.

Length—6.1 m (20 ft.)

NTBK05AA SDT12 120-Ohm E1 Cable

Length—6.1 m (20 ft.)

NTBK05CA 2.0 Mbit DTI/PRI Coaxial Carrier Cable

Carries Tx and Rx pairs to a standard 120-Ohm D-connector. Not supported under EMC specification VL43.140P.

Length—6.1 m (20 ft.)

NTBK05DA 2.0 Mbit DTI/PRI Twisted Pair Cable

Carries Tx and Rx pairs to a standard 120-Ohm D-connector. Not supported under EMC specification VL43.140P.

NTBK48AA 3-port SDI Cable

Connects equipment such as TTYs and modems to cabinets, chassis, or Call Servers.

NTBK95 CE-MUX/DS-30X Bus Cable

Connects the NTDK91 Chassis to the NTDK92 Chassis Expander. Two cables are required for each connection.

Length—61 cm (2ft.)

NTCG03 Reference Clock Cable

Connects each of the CLK0 or CLK1 ports on the NT5D12AH Dual DTI/PRI (DDP) card to the primary or secondary source ports on the Clock Controller card 0 or 1.

Lengths—

- NTCG03AA 4.20 m (14 ft.)
- NTCG03AB 0.84 m (2.8 ft.)
- NTCG03AC 1.20 m (4 ft.)
- NTCG03AD 2.10 m (7 ft.)

NTCK46 External DCHI Cable

Connects the NT5D12AH Dual DTI/PRI (DDP) card to the QPC757 DCHI D-Channel Handler card.

Lengths—

- NTCK46AA 1.8 m (6 ft.)
- NTCK46AB 5.4 m (18 ft.)
- NTCK46AC 10.6 m (35 ft.)
- NTCK46AD 15.2 m (50 ft.)

NTCK80 External MSDL Cable

Connects the NT5D12AH Dual DTI-PRI (DDP) card to the NT6D80 MSDL card.

Lengths—

- NTCK80AA 1.8 m (6 ft.)
- NTCK80AB 5.4 m (18 ft.)
- NTCK80AC 10.6 m (35 ft.)
- NTCK80AD 15.2 m (50 ft.)

NTCW10 DECT Base Station Cable

Used with a UTP CAT5 cable to connect a DECT base station to the MDF.

NTCW11AA DECT DMC8 to DMC8 Faceplate Cable

Interconnects DECT DMC8 cards faceplates.

NTCW11BA DECT DMC8 to DMC8-E Faceplate Cable

Interconnects DECT DMC8 cards.

NTCW11EA DECT DMC8-E to DMC8-E Faceplate Cable

Interconnects DECT IPE shelves.

NTCW12DA DECT Ethernet Cable

Connects the DECT IPE shelf to the Optivity Telephony Manager LAN.

NTCW84JA I/O Panel Mounting Connector

Connects system backplane to 50-pin I/O Panel, and provides ITG-specific filtering.

NTCW84KA Cable with MSDL Filter

Cable for ITG 2.0 ELAN, TLAN, RS-232, and D-Chip port.

NTCW84LA Cable with MSDL Adaptor Filter

Cable for TLAN, RS-232, and D-Chip port. Equipped with NTCW80CA MSDL Adaptor Filter.

NTCW84MA Cable with MSDL Adaptor Filter

Cable for ELAN, TLAN, RS-232, and D-Chip port. Equipped with NTCW80CA MSDL Adaptor Filter.

NTDK49 Expansion Kit

Provides necessary cables to expand cabinet or chassis systems.

The NTDK49 is available in the following versions:

- NTDK49AA Cabinet Expansion Kit
- NTDK49BA 10 m Fibre Cabinet Expansion Kit
- NTDK49CB 100BaseT IP Cabinet Expansion Kit
- NTDK49DB 100BaseT IP Chassis Expansion Kit
- NTDK49EB 100BaseF IP Cabinet Expansion Kit
- NTDK49EB 100BaseF IP Chassis Expansion Kit
- NTDK49JA 10 m Fibre Chassis Expansion Kit

NTDK88AB Main Chassis Cable Kit

Contains cables for installing main chassis. The kit includes:

- Modem Eliminator Adapter (Null Modem) (A0601396)
- Modem Eliminator Adapter (Null Modem) (A0601397)
- PFTU/Console Power Cable (NTAK1104)
- 3-port SDI Cable (NTBK48)

NTDK89AA Chassis Expander Cable Kit

Connects NTDK91 Chassis and NTDK92 Chassis Expander. The kit includes two CE-MUX/DS-30X Bus Cables and an anti-static wrist strap.

NTDK95 25-pair Cable

Connects the DS 30X and CE-MUX to the Expansion DS 30X and CE-MUX.

NTDK8305 100BaseT Extension Cable

Provides 100BaseT connection between the main and IP expansion NTAK11 Cabinets in a point-to-point or LAN configuration.

NTDU25BA Chassis Cable Kit

Cable kit for connection of chassis systems.

NTDU0606 RJ-45 Ethernet Cable Assembly, M-M

Connects the Call Server NTDK83 Dual-port IP daughterboard to the Call Server bulkhead connectors.

Length—25 cm (10 in.)

NTND11BA CP-to-CP Cable

Connects the NT6D66 CP Card in Core/Network Module 0 to the NT6D66 CP Card in Core/Network Module 1. For Core/Network Modules stacked in one column, NTND11BA is used.

Lengths—1.8 m (6 ft.)

NTND13BC IOP to IOP SCSI Cable

Connects the card slot for the NT6D63 IOP Card in Core/Network Module 0 to the NT6D63 IOP Card in the Core/Network Module 1.

Length—1.8 m (6 ft.)

NTND14 CNI to 3PE Cable

Connects CPU Core to Network Shelf.

Lengths—

- NTND14BA 1.8 m (6 ft.)
- NTND14BB 2.4 m (8 ft.)
- NTND14BC 3.0 m (10 ft.)
- NTND14BD 3.7 m (12 ft.)
- NTND14BE 7.6 m (25 ft.)
- NTND14BG 10.6 m (35 ft.)

NTND26 MSDL to DCHI Cable

Connects a multipurpose serial data link (MSDL) port to the ISDN PRI trunk connector for DCH.

Lengths—

- NTND26AA 1.8 m (6 ft.)
- NTND26AB 5.4 m (18 ft.)
- NTND26AC 10.6 m (35 ft.)
- NTND26AD 15.2 m (50 ft.)

NTND27AB MSDL SDI/AM2 Cable

Length—1.8 m (6 ft.)

NTND28 Network Expansion Cable

Included in the NTND33 Core Module Upgrade Kits.

Lengths—

- NTND28BB 4.8 m (16 ft)
- NTND28BC 6.7 m (22 ft)

NTND29AA Network Expansion CPU Interface Cable

Length—1.8 m (6 ft.)

NTND33FA Cable Kit for CP3 and CP4 Systems (backplane connection)

Provides the hardware to connect a Core using CP3 and CP4 processors (system versions 2611 and 3011 respectively) to one Network group, when the connection is made to the back of the CNI cards. All backplane connections for the CNI3 (NTRB34) will use this kit.

The NTND33FA kit contains the following:

- four NTND94 CNI to I/O panel cables
- four NTND95 I/O panel to 3PE cables (network shelf)
- four NTND28 intercabinet screened cables
- four A0360683 adaptor connectors
- four P0745713 I/O panels
- eight P0738866 cable labels
- hardware
- cable ties

This kit will replace four NTND14 cables that connect the CPU Core to a network shelf, if the network were located in the same row as the Core.

NTND33GA Cable Kit for CP3 and CP4 Systems (CNI3 faceplate connection)

Provides the hardware to connect a Core using CP3 and CP4 processors to one Network group, when the connection is made to the faceplate of the CNI3 cards. Only faceplate connections from the CNI3 (NTRB34) will use this kit.

The NTND33GA kit contains the following:

- four NTND94 CNI3 faceplate to I/O panel cables
- four NT8D76BD 5-ft I/O panel to 3PE cables (network shelf)
- four NTND28 intercabinet screened cables
- four A0360683 adaptor connectors
- four P0745713 I/O panels
- eight P0738866 cable labels
- hardware
- cable ties

This kit will replace four NT9D89 cables that connect the CPU Core to a network shelf, if the network were located in the same row as the Core.

NTND33HA Cable Kit for CP PII Systems

Provides the hardware to connect a Core using CP PII processors to one Network group.

NTND82 Printer to LIU Cable

Lengths—

- NTND82AA 3.0 m (10 ft.)
- NTND82AB 7.6 m (25 ft.)

NTND91 CSL Cable

Lengths—

- NTND91AA 3.0 m (10 ft.)
- NTND91AB 7.6 m (25 ft.)

NTND94DA CNI to I/O Panel Cable

Connects the two ports on the NT6D65 CNI Card to the I/O panel in the Core or Core/Network Module.

Included in the NTND33 Core Module Upgrade Kits.

Length—0.5 m (20 in.)

NTND98AA PRI to I/O Cable Assembly

Connects the PRI card to the I/O Panel.

Length—1.8 m (6 ft.)

NTRC17BA Cross-over Ethernet cable

Connects CP PII card LAN 2 port of Core/Net 0 to CP PII card LAN 2 port of Core/Net 1. If a LAN hub is not available, Connects CP PII card LAN 1 port of Core/Net 0 to CP PII card LAN 1 port of Core/Net 1.

NTRC46 Clock to FIJI Cable

Connects the Clock Controller cards and the FIJI cards in Group 0.

Lengths— (* indicates the lengths of the two Y-terminations)

- NTRC46BC 17.1 m to 2.4* m (5.5 ft. to 8* ft.)
- NTRC46CB 6.7 m to 6.7* m (22 ft. to 22* ft.)

NTRC47AA FIJI to FIJI Sync Cable

Connects the FIJI cards in shelf 0 and shelf 1 (except Group 0). One FIJI to FIJI Sync cable is required per network group.

Length—1.5 m (5 ft.)

NTRC48 Fiber Ring Cable

Connects FIJI cards in a Fiber Network-based system. One ring cables the FIJI cards in all Network shelf 0, and a second ring cables the FIJI cards in Network shelf 1.

Lengths—

- NTRC48AA 1.8 m (6 ft.)
- NTRC48BA 3.0 m (10 ft.)
- NTRC48CA 3.6 m (12 ft.)
- NTRC48DA 4.2 m (14 ft.)
- NTRC48EA 5.8 m (19 ft.)
- NTRC48FA 7.0 m (26 ft.)

NTRC49 Clock to Clock Cable

Connects Clock 0 to Clock 1 in a Fiber Network-based system. This cable also provides the connections to the NTRC46 cables that connect between the Clock Controllers and the FIJI cards in Group 0.

Lengths—

- NTRC49AA 1.8 m (6 ft.)
- NTRC49BA 6.1 m (20 ft.)

NTTK14AB AC Power Cord

Connects the NTDK91 Chassis and NTDK92 Chassis Expander to a commercial 125 V AC power source.

Used in North America, CALA, the Middle East, Taiwan, Indonesia, Philippines, Korea, Thailand, Vietnam, and China.

Length— 3.1 m (10 ft. 3 in.)

NTTK15AA AC Power Cord

Connects the NTDK91 Chassis and NTDK92 Chassis Expander to a commercial 240 V AC power source.

Used in Australia and New Zealand.

Length— 2.4 m (8 ft.)

NTTK16AB Power Cord

Used in Europe.

NTTK17AB Power Cord

Used in Switzerland.

Length— 2.5 m (8 ft. 2 in.)

NTTK18AB Power Cord

Used in the UK, Ireland, Singapore, Malaysia, Hong Kong, India, Bangladesh, Pakistan, Sri Lanka, and Brunei.

NTTK22AB Power Cord

Used in Denmark.

NTTK34AA UTP Cat-5 RJ45 Cross-over Cable

Connects the Call Server and chassis, or main and expansion NTAK11 Cabinets, in a point-to-point mode.

Length—2 m (6 ft. 7 in.)

Equipment: QAA000 – QZZ999

QCAD133A PRI/DTI I/O to MDF Cable

Provides shielded cable pairs to connect the PRI or DTI card to the MDF through the I/O panel. Also, connects the 15-pin I/O filter connector to the 15-pin Network Channel Terminating Equipment (NCTE) connector.

Length—15.2 m (50 ft.)

QCAD328 DCHI Interface Cable

A 25-pair cable with a 25-pin D-type male connector at one end and a 15-pin D-type male connector at the other end. Connects the PRI card to the D-channel interface card.

Lengths—

- QCAD329A 1.8 m (6 ft.)
- QCAD329B 5.5 m (18 ft.)
- QCAD329C 10.7 m (35 ft.)
- QCAD329D 15.2 m (50 ft.)

Miscellaneous equipment

Contents

This section contains information on the following topics:

Introduction

This chapter identifies miscellaneous equipment supported for use in Meridian 1 and CS 1000 systems.

Equipment: A0000000 – A9999999

A0345353 Black Box ABC Switch

Connects a remote PC, used as an 802.11 Wireless diagnostic terminal, to a Large System. If the PC is also used for other applications, the A0345353 disconnects the PC from the Large System.

A0634494 Fiber Remote Multi-IPE Rack Mount Shelf Option

Provides equipment to rack-mount the Fiber Remote Multi-IPE.

A0638930 Motorola 28.8 Fax/Data Modem

Provides 9600 baud transmission. Equipped with a 6-ft power cord for a standard 110 V AC wall socket, a cable that connects to an RJ-11C jack, and an internal telephone jack for voice capability.

A0863689 Blank PCMCIA Memory Card Assembly (64 MByte)

Blank 64 Mbyte PC Card used for downloading system software. Also used on the Integrated Recorded Announcer card for additional storage space, and for backing-up and restoring the database on the SSC card.

A0873105 Anti-static Wrist Strap

Used when handling equipment to safely discharge static electricity.

Equipment: NT0A00 – NT9Z99

NT4N6809 cCPI Security Device Holder

Spring clamp to hold the security device (dongle). In later releases, the NT4N6809 has been made redundant by the clamp being mounted directly on the card.

NT4N71BA cPCI LED/LCD Status Display Panel

LCD display located on the front chassis the Core/Net shelf.

NT5D52BC Ethernet Adapter Card

Installed on the IPE Module I/O panel only when the NT5D51 Integrated Conference Bridge card is to be connected to the Ethernet.

NT7D0902 Rear Mount Conduit Kit

Allows conduit to enter the PDU from the rear (above the floor).

NT7R94AA Carrier Wall Mount Cable Kit

Modifies the Fiber Remote Carrier IPE cabinet so that the I/O panel assembly can connect to the Small Carrier Remote IPE cabinet.

NT8D63AA Overhead Cable Kit

Holds I/O cables that go from the system to the MDF. Provides support for overhead cabling tray. Mounts to the highest module in each column. The kit contains:

- support brackets
- front and rear top cap air grills with cutouts

NT8D64 Seismic bracing kit

Holds all the parts of a column in place during a major physical disruption such as an earthquake. Used only for non-raised floor.

The kit comes in the following vintages:

- NT8D64BD — Module Expansion Rods
- NT8D64BF — Floor Mounting Kit (non-seismic)
- NT8D64BH — Floor Module Anchor Hole Template
- NT8D64CA — Earthquake Bracing Kit for 2-module column
- NT8D64CB — Earthquake Bracing Kit for 3-module column
- NT8D64CC — Earthquake Bracing Kit for 4-module column
- NT8D64CD — Earthquake Bracing Kit for 1-module column
- NT8D64CE — Seismic Bracing Anchor Kit (Bellcore)

Each Earthquake Bracing Kit contains:

- four threaded rods
- two tie bars
- miscellaneous hardware (such as nuts and washers)

NT8D6401 Insulating Washer Kit

Electrically insulates the mounting bolts from the pedestal casing. Used when attaching the Large System to the floor when the installer is using a third-party anchor kit instead of the NT8D64 Floor Mounting Kit. Each NT8D6401 kit provides four insulating washers. One kit is required for each pedestal.

NT8D1107 Superloop Adapter Plate

Reduces the QPC414 network loop cutout to accept a superloop connection.

Equipment: NTAA00 – NTZZ99

NTAK92BA Off-premises Protection Module

Connects up to four off-premises analog telephones.

NTND36AA Meridian Communications Unit (MCU)

The MCU enables data to be transmitted and received using Public Switched Data Service (PSDS), over either the public network or private network. It is a stand-alone equivalent of the Meridian Communications Adapter (MCA).

For more information, refer to *Meridian Communications Unit and Meridian Communications Adapter: Description, Installation, Administration, Operation* (553-2731-109).

Equipment: P0000000 – P9999999

P0699851 Top Cap Cable Egress Panel

Replaces the rear top cap grill on each column when ceiling-hung racks are used. Provides cutouts for cable routing.

P0745713 Growth I/O Panel

Provides increased I/O panel capacity for connectivity provided by this panel. Included in the NTND33 Core Module Upgrade Kits.

P0745716 Universal I/O Panel

Provides increased I/O panel capacity for connectivity provided by this panel, including QPC414 network loops that must extend outside the system module.

P0741489 Backplane Cable Extraction Tool

Disconnect cable connectors attached to the rear of the backplane in the NT5D21 Core/Network Module.

List of terms

Table 4 lists the mnemonics used in this document and their definitions.

Table 4
Glossary (Part 1 of 9)

Mnemonic	Description
2DR	Two-Way, Dial Repeating
3PE	Three-Port Extender
ACD	Automatic Call Distribution
ADM	Add-On Data Module
AEM	Application Equipment Module
AIM	Asynchronous Interface Module
AIOD	Automatically Identified Outward Dialing
ALC	Analog Line Card
ALU	Arithmetic Logic Unit
ANI	Automatic Number Identification
ANSI	American National Standards Institute
AOP	Attendant Overflow Position
APAC	Asia Pacific
ASIM	Asynchronous/Synchronous Interface Module
ATX	Autodial Tandem Transfer

Table 4
Glossary (Part 2 of 9)

Mnemonic	Description
BKI	Break-In
BLF	Busy Lamp Field
BPO	Battery Pulse Option
bps	Bits Per Second
BRA	Basic Rate Access
BRI	Basic Rate Interface
BRIT	Basic Rate Interface Trunk
BTU	Bus Terminating Unit
CALA	Caribbean and Latin America
CAMA	Centralized Automatic Message Accounting
CAS	Centralized Attendant Service
CASM	Centralized Attendant Service—Main
CASR	Centralized Attendant Service—Remote
CBT	Core Bus Terminator
CC	Clock Controller
CDR	Call Detail Recording
CDRX	Call Detail Recording Enhancement
CE	Common Equipment
CGM	Console Graphics Module
CIM	Control, Interface, and Memory
CIS	Commonwealth of Independent States
CMA	Changeover and Memory Arbitrator

Table 4
Glossary (Part 3 of 9)

Mnemonic	Description
CMDU	Core Multi Drive Unit
CNI	Core Network Interface
CO	Central Office
CP	Call Processor
CPI	Computer Private Branch Exchange (PBX) Interface
CPND	Call Party Name Display
CPU	Central Processing Unit
CRT	Cathode Ray Tube
CSL	Command Status Link
CT	Control and Timing Conference/TDS (circuit card)
DAC	Data Access Card
DASS2	Digital Access Signaling System 2
DCE	Data Communication Equipment
DCHI	D-Channel Handler Interface
DCK	Recorded Telephone Dictation Trunk feature
DECT	Digital Enhanced Cordless Telecommunications
DID	Direct Inward Dialing
DLB	Dual Loop Peripheral Buffer
DLC	Digital Line Card
DOD	Direct Outward Dialing
DPNSS1	Digital Private Network Signaling System 1
DTE	Data Terminal Equipment

Table 4
Glossary (Part 4 of 9)

Mnemonic	Description
DTI	Digital Trunk Interface
DTMF	Dual Tone Multifrequency
DTR	Digitone Receiver
EAR	Enhanced ACD Routing
ECT	Enhanced Call Treatment
EDRG	Executive Distinctive Ringing
EIA	Electronic Industry Association
EMEA	Europe, Middle East, and Asia
EMI	Electromagnetic Interference
ENET	Enhanced Network
EQA	FCC Equal Access
ESN	Electronic Switched Network
ETSI	European Telecommunications Standards Institute
EURO	Euro ISDN
F-F	Female-to-Female
F-M	Female-to-Male
FCDR	Format of Call Detail Recording
FDD	Floppy Disk Drive
FDI	Floppy Disk Interface
FDM	Floppy Disk Module
FDU	Floppy Disk Unit
FIJI	Fiber Junctor Interface

Table 4
Glossary (Part 5 of 9)

Mnemonic	Description
FM	Fully Modular
FN	Function
FRTA	French Type Approval
FX	Foreign Exchange
GRPI	1.5/2.0 Mbit/s ISDN Gateway
HDD	Hard Disk Drive
HOSP	Hospital Management
HSDC	High Speed Data Card
ICM	Integrated CPU/Memory
IDA	Integrated Digital Access
IGS	InterGroup Switch
INDB	International nB+D
I/O	Input/Output
IODU/C	Input/Output Disk Unit with CD-ROM
IOP	I/O Processor
IOP/CMDU	I/O Processor/Core Multi Drive Unit
IPB	InterProcessor Bus
IPE	Intelligent Peripheral Equipment
ISDLC	Integrated Services Digital Line Card
ISDN	Integrated Services Digital Network
ITU	International Telecommunications Union
IVR	Hold in Queue for Interactive Voice Response

Table 4
Glossary (Part 6 of 9)

Mnemonic	Description
KD3	Spanish Signaling Protocol
LCD	Liquid Crystal Display
LRE	Logic Return Equalizer
MCA	Meridian Communications Adapter
MCDR	Mini Call Detail Recording
MCDS	Multi-Channel Data System
MCU	Meridian Communications Unit
MDF	Main Distribution Frame
MDU	Multi Disk Unit
MFC	Multifrequency Compelled Signaling
MFS	Multifrequency Signaling
MGC	Multigroup Control
MGE	Multigroup Extender
MGS	Multigroup Switch
MISP	Multipurpose ISDN Signaling Processor
MLIO	Multi-Language I/O
MLM	Meridian Link Module
MMDU	Multi-Media Disk Unit
MPDU	Module Power Distribution Unit
MSDL	Multipurpose Serial Data Link
MSI	Mass Storage Interface
MSPS	Misc/SDI/Peripheral Signaling

Table 4
Glossary (Part 7 of 9)

Mnemonic	Description
MSU	Mass Storage Unit
MWALC	Analog Message Waiting Line Card
NT1	Network Termination Unit
OAID	Outgoing Automatic Incoming Dial
OANI	Outgoing Automatic Number Identification
OPAO	Outpulsing of Asterisk and Octothorpe
OPX	Off-Premises Extension
ORC	Originator Ringing Control
OVLP	Overlap Signaling
PAD	Packet Assembler/Disassembler
PBX	Private Branch Exchange
PCM	Pulse Code Modulation
PDU	Power Distribution Unit
PE	Peripheral Equipment
PFTU	Power Failure Transfer Unit
PHNT	Phantom Terminal Number Operation
PPM	Periodic Pulse Metering
PRA	Primary Rate Access
PRI	Primary Rate Interface
PROM	Programmable Read-Only Memory
PS	Peripheral Signaling
PSDS	Public Switched Data Service

Table 4
Glossary (Part 8 of 9)

Mnemonic	Description
PTE	Packet Transport Equipment
QM	Quarter Modular
QSDI	Quad Serial Data Interface
RAM	Random Access Memory
RFI	Radio-Frequency Interference
ROM	Read-Only Memory
RPE	Remote Peripheral Equipment
RTC	Real-Time Clock
SAMM	Stand-Alone Meridian Mail
SBE	Segmented Bus Extender
SCG	System Clock Generator
SCSI	Small Computer System Interface
SDI	Serial Data Interface
SEQ	Sequencer
SILC	S/T Interface Line Card
SML	System Message Lookup
SNET	Superloop Network
SSC	Small System Controller
TCM	Time Compression Multiplexing
TDS	Tone and Digit Switch
THF	Trunk Hook Flash
TOPS	Traffic Operator Position System

Table 4
Glossary (Part 9 of 9)

Mnemonic	Description
TSPS	Traffic Service Position System
TTY	Teletype Machine
UEM	Universal Equipment Module
UK	United Kingdom
UILC	Universal Interface Line Card
UPS	Uninterruptible Power Supply
UT	Universal Trunk
VLAN	Virtual Local Area Network (VLAN)
VNS	Virtual Network Services
WATS	Wide Area Telephone Service
XMFC	Extended Multifrequency Compelled Signaling
XMFE	Extended Multifrequency Signaling For Socotel
XPE	Extended Peripheral Equipment
XPEC	Extended Peripheral Equipment Controller
XSDI	Extended Serial Data Interface
XSM	Extended System Monitor

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Symbols

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