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**Meridian 1**

**Succession 1000M**

Succession 3.0 Software

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# Small System

## Overview

Document Number: 553-3011-010

Document Release: Standard 1.00

Date: October 2003

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# Revision history

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## October 2003

Standard 1.00. This document is a new NTP for Succession 3.0. It was created to support a restructuring of the Documentation Library, which resulted in the merging of multiple legacy NTPs. This new document consolidates information previously contained in the following legacy documents, now retired:

- *Option 11C and 11C Mini Technical Reference Guide (553-3011-100)* (Content from *Option 11C and 11C Mini Technical Reference Guide (553-3011-100)* also appears in *Small System: Planning and Engineering (553-3011-120)*, *Transmission Parameters (553-3001-182)*, and *Circuit Card: Description and Installation (553-3001-211)*.)
- *Option 11C Mini: Expansion using Fiber-optic and IP Connectivity Guide (553-3021-208)* (Content from *Option 11C Mini: Expansion using Fiber-optic and IP Connectivity Guide (553-3021-208)* also appears in *Small System: Upgrade Procedures (553-3011-258)* and *Small System: Planning and Engineering (553-3011-120)*.)
- *Option 11C Mini Planning and Installation Guide (553-3021-209)* (Content from *Option 11C Mini Planning and Installation Guide (553-3021-209)* also appears in *Small System: Installation and Configuration (553-3011-210)* and *Small System: Planning and Engineering (553-3011-120)*.)
- *Option 11C Planning and Installation Guide (553-3021-210)* (Content from *Option 11C Planning and Installation Guide (553-3021-210)* also appears in *Small System: Installation and Configuration (553-3011-210)* and *Small System: Planning and Engineering (553-3011-120)*.)



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## About this document

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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 provides an overview of the general design and features of Small Systems.

#### **Note on legacy products and releases**

This NTP contains information about systems, components, and features that are compatible with Succession 3.0 Software. For more information on legacy products and releases, click the **Technical Documentation** link under **Support** on the Nortel Networks home page:

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### Applicable systems

This document applies to the following systems:

- Meridian 1 Option 11C Chassis
- Meridian 1 Option 11C Cabinet
- Succession 1000M Chassis
- Succession 1000M Cabinet

## System migration

When particular Meridian 1 systems are upgraded to run Succession 3.0 Software and configured to include a Succession Signaling Server, they become Succession 1000M systems. Table 1 lists each Meridian 1 Small System that supports an upgrade path to a Succession 1000M Small System.

**Table 1**  
**Meridian 1 systems to Succession 1000M systems**

<b>This Meridian 1 system...</b>	<b>Maps to this Succession 1000M system</b>
Meridian 1 Option 11C Chassis	Succession 1000M Chassis
Meridian 1 Option 11C Cabinet	Succession 1000M Cabinet

Note the following:

- When an Option 11C Mini system is upgraded to run Succession 3.0 Software, that system becomes a Meridian 1 Option 11C Chassis.
- When an Option 11C system is upgraded to run Succession 3.0 Software, that system becomes a Meridian 1 Option 11C Cabinet.

For more information, see *Small System: Upgrade Procedures* (553-3011-258).

## Intended audience

This document is intended to be of general interest or an introductory overview for individuals responsible for the sale, acquisition, planning, or installation of small PBX telephone systems.

## Conventions

### Terminology

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

- Meridian 1
- Succession 1000M

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

- Meridian 1 Option 11C Chassis
- Meridian 1 Option 11C Cabinet
- Succession 1000M Chassis
- Succession 1000M Cabinet

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

- Meridian 1 Option 11C Chassis
- Succession 1000M Chassis

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

- Meridian 1 Option 11C Cabinet
- Succession 1000M Cabinet

## Related information

This section lists information sources that relate to this document.

### NTPs

The following NTPs are referenced in this document:

- *Signaling Server: Installation and Configuration* (553-3001-212)
- *Set-Based Administration* (553-3001-303)
- *Small System: Planning and Engineering* (553-3011-120)

- *Small System: Installation and Configuration* (553-3011-210)
- *Small System: Upgrade Procedures* (553-3011-258)
- *Small System: Maintenance* (553-3011-500)

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# Description and features

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## Description

The Meridian 1 Option 11C Cabinet and Meridian 1 Option 11C Chassis are small digital communications systems that offer the advantages of simple installation, maintenance, and administration while retaining the full features of a Large System.

### Cabinet system

The Meridian 1 Option 11C Cabinet is a small, wall- or floor-mounted digital communications system that can include up to five cabinets: one main cabinet plus up to four expansion cabinets. Figure 1 shows a Meridian 1 Option 11C Cabinet.

The Succession 1000M Cabinet is a Meridian 1 Option 11C Cabinet with a Succession Signaling Server in the network configuration. Refer to *Signaling Server: Installation and Configuration (553-3001-212)* for more information about the Succession Signaling Server.

**Figure 1**  
**NTAK11 cabinet**



The Cabinet system can be expanded using either fiber or IP connectivity, or a mixture of both. Refer to “Fiber-optic and IP expansion” on [page 27](#) for more information.

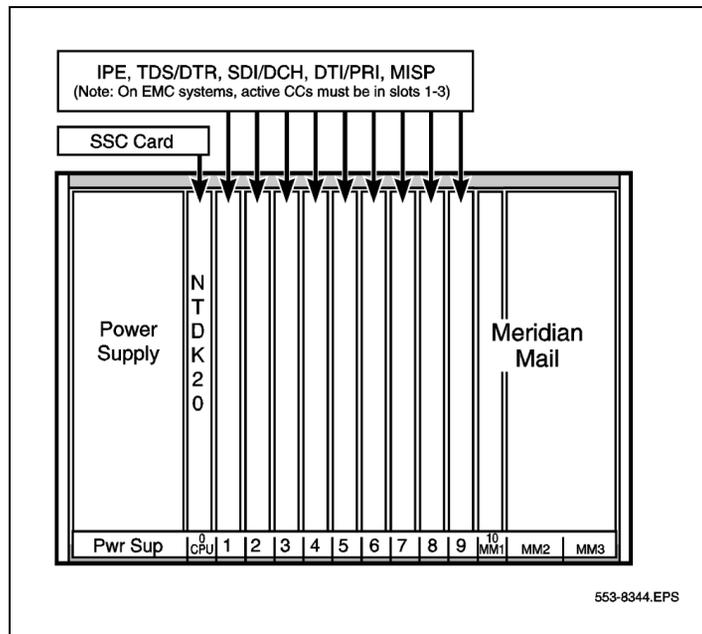
A fully expanded Cabinet system can support up to 720 lines or up to 1000 Internet Telephones.

### Card slot specifications

In addition to one dedicated card slot for system control functions, the main and expansion cabinets each provide ten Intelligent Peripheral Equipment (IPE) card slots. These card slots support line cards, trunk cards, and application cards used in other Succession 1000M, Succession 1000, and Meridian 1 systems. They also support line and trunk cards that have been specially designed to work only in Cabinet systems.

Figure 2 shows the card slot assignments in the main cabinet.

**Figure 2**  
**Circuit card assignments in the main cabinet**



## Power

Two types of power supply are available for the Cabinet system:

- NTDK70 or NTDK78 ac/dc power supply
- NTDK72 dc power supply (when the cabinet is powered by a -52 V dc source)

In addition, the Cabinet system supports three types of reserve power:

- NTAK75 battery box, which provides a minimum of two hours of reserve dc power
- NTAK76 battery box, which provides a minimum of 15 minutes of reserve dc power
- Uninterruptible Power Supply (UPS) for continuous ac power supply

When the main power is cut off to the Small System, optional Power Failure Transfer Units (PFTU) connect predetermined analog telephones directly to the Central Office (CO) trunks. The PFTU supports five to eight telephones, depending on the PFTU used.

## Chassis system

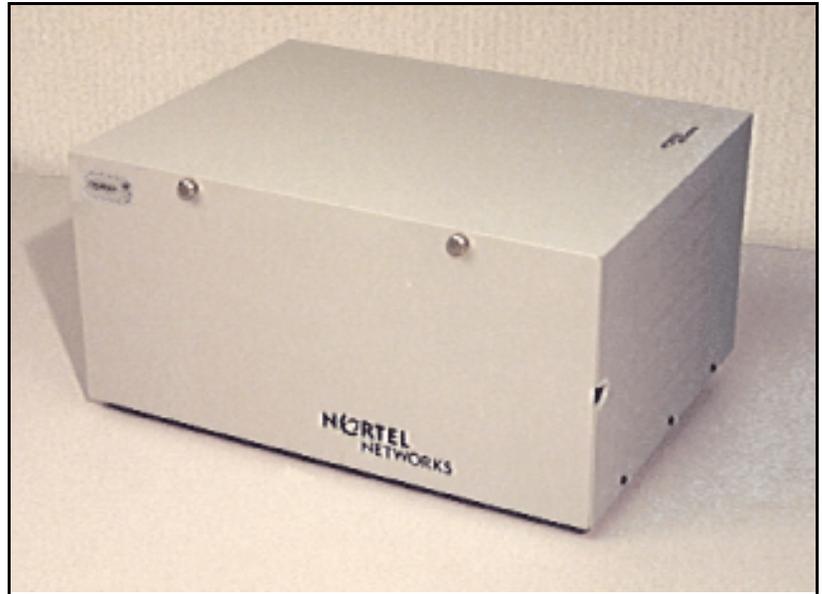
The Meridian 1 Option 11C Chassis is a small digital communications system that consists of a chassis plus an optional chassis expander. Two copper cables connect the chassis expander to the chassis. In addition, the Chassis system can be expanded to include up to four expansion chassis (or chassis + chassis expander pairs). Figure 3 on [page 15](#) shows a Meridian 1 Option 11C Chassis.

The Chassis system can be mounted:

- in a 19-inch rack/equipment cabinet
- on a wall in a vertical position
- on a wall in a horizontal position

The Succession 1000M Chassis is a Small System with a Succession Signaling Server in the network configuration. Refer to *Signaling Server: Installation and Configuration (553-3001-212)* for more information about the Succession Signaling Server.

**Figure 3**  
**NTDK91 chassis**



The Chassis system can be expanded using either fiber or IP connectivity, or a mixture of both. Refer to “Fiber-optic and IP expansion” on [page 27](#) for more information.

A chassis with chassis expander can support up to 128 lines. A fully expanded Chassis system can support up to 720 lines or up to 1000 Internet Telephones.

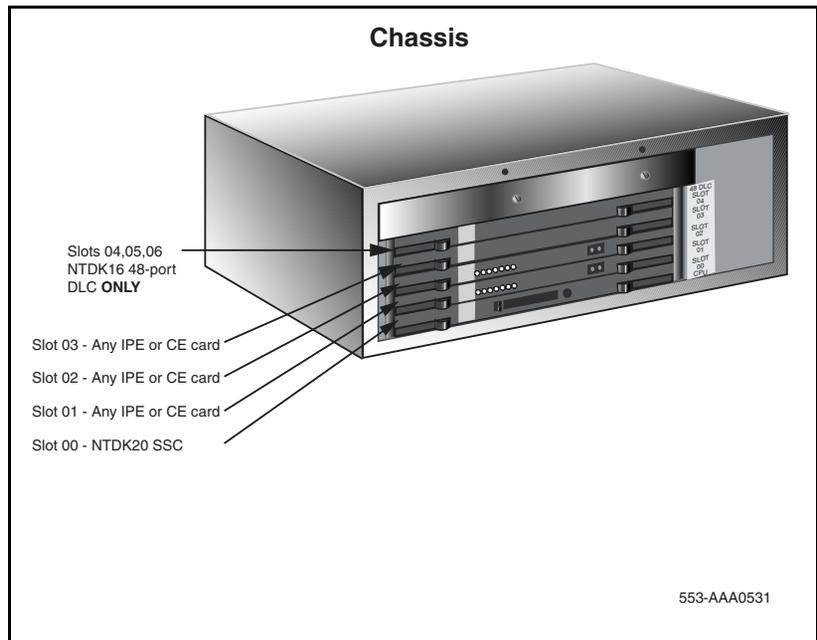
### **Card slot specifications**

The chassis has five card slots, two of which are dedicated: slot 0 is dedicated to the Small System Controller (SSC) card, and slot 4 is dedicated to the 48-port Digital Line Card (NTDK16). Slots 1–3 support existing IPE and CE cards (for example, PRI, PRI2, DTI, DTI2, MISP, and SDI/DCH).

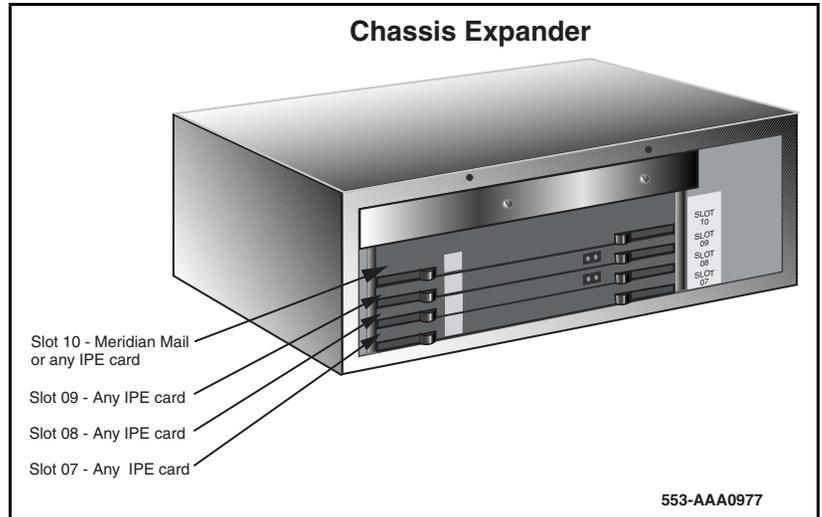
The chassis expander has four card slots. The chassis expander supports Meridian Mail in slot 10 only. You can place any IPE card in slots 7, 8, 9, and 10. The CE-MUX bus extends to slot 10 for Meridian Mail only.

A chassis with chassis expander supports eight physical and ten logical card slots. In a fully expanded system consisting of five chassis and chassis expander pairs, a total of 40 physical and 50 logical card slots are supported.

**Figure 4**  
**Circuit card assignments in the chassis**



**Figure 5**  
**Circuit card assignments in the chassis expander**



The following is an example of a common chassis configuration:

- one SSC card in slot 0
- one analog line card in slot 1, 2, or 3
- one digital trunk card in slot 1, 2, or 3
- one analog trunk card in slot 1, 2, or 3
- one NTDK16, 48-port Digital Line Card in slot 4

The following is an example of a common chassis expander configuration:

- line cards in slots 7, 8, and 9
- Meridian Mail in slot 10

### Power

The universal power supply unit is installed in the chassis before it is sent to the customer and requires no installation by the customer. The power supply

operates on standard line voltages of 100–240 V ac. Total output power is 363 Watts.

*Note:* The Chassis system does not support dc power input.

An Uninterruptible Power Supply (UPS) can provide reserve ac power. The Chassis system does not support battery backup.

When the main power is cut off to the Small System, optional Power Failure Transfer Units (PFTU) connect predetermined analog telephones directly to the Central Office (CO) trunks. The PFTU supports five to eight telephones, depending on the PFTU used.

## Memory, processing, and data storage

Small Systems use a Motorola 68040 CP with VxWorks operating system. The processor, which is located on the Small System Controller (SSC) card in the main cabinet or chassis, handles call processing, serial ports, and network traffic.

Small Systems support global software as well as line and trunk cards used in other Succession 1000M, Succession 1000, and Meridian 1 systems.

The memory architecture of the system has program and data stored in physically separate memory components: flash ROM and DRAM, respectively. The DRAM is installed in the single DRAM slot, which supports a 16 Mb or 32 Mb SIMM. The flash ROM is on a daughterboard, which allows 32 Mb of program storage and a 16 Mb disk emulator.

Two flash drives on the SSC card perform software operations and store customer data:

- the primary flash drive contains system data as well as the first copy of customer data that must exist to load and run the switch. The primary flash drive is programmed with system software before it is shipped to the customer.
- the backup flash drive stores modifiable files containing data such as configuration data, or a second copy of the customer database. If the primary flash drive fails, you can retrieve a backup set of customer data to load into the system's active database.

There are four areas on the SSC card where customer data records can be stored:

- **DRAM** — stores and accesses the active version of customer records, system data, and overlay data. Data from the primary flash drive overwrites data in DRAM storage during a SYSLOAD (system reload).
- **Primary flash drive (C:)** — contains two copies of customer records (primary and backup records).
- **Backup flash drive (Z:)** — retains the true backup copy of the customer database.
- **PC Card device (A: or B:)** — allows a complete copy of the customer database to be stored on a Software Delivery card (PC Card) inserted into this device. The customer database on the PC Card can then be removed for storage away from the SSC card.

## **SSC card and components**

The NTDK20 SSC card controls call processing, stores system and customer data, and provides various expansion interfaces. It includes the following components and features:

- flash daughterboard memory, DRAM, and backup memory
- two expansion daughterboard interfaces
- PC Card socket
- three Serial Data Interface (SDI) ports
- 32 channels of Conferencing (64 if two single-port expansion daughterboards are present, or 96 if two dual-port expansion daughterboards are present)
- Ethernet (10 Mbps) interface port
- 30 channels of Tone and Digit Switch (TDS) and a combination of eight Digitone Receivers (DTR) or Dial Tone Detectors (DTD)
- Networking and Peripheral Signaling
- additional tone service ports (four units of MFC/MFE/MFK5/MFK6/MFR or eight DTR/XTD units)

The SSC card requires a Software Daughterboard in order to function. The Software Daughterboard can be ordered preprogrammed with system software and customer data.

A security device is required on the SSC card of the main and all expansion cabinets/chassis. The security device, which remains on the SSC card for the life of the system, is used for system identification. This device allows the activation of features assigned to the system, through the use of a series of keycodes. The system uses keycodes for validation purposes.

## Easy installation and configuration

The Small System supports Succession 3.0 global software, the same as other Succession 1000M, Succession 1000, and Meridian 1 systems, so it supports full feature functionality.

A wide choice of software is available, from general business features to advanced applications. The software contains all of the components related to a release of software, including software patches, preconfigured customer database, feature sets, and other related databases and software.

Small Systems can be configured with software applications, such as Automatic Call Distribution (ACD), Voice Mail, Automatic Route Selection, Automatic Set Relocation, and Attendant Administration.

The Meridian Mail application comes equipped with features like Voice Menus, Automated Attendant, and Hospitality Voice Services. Meridian Mail Networking is available on advanced Meridian Mail systems.

Customers can configure a Small System as:

- a key system or a Private Branch Exchange (PBX)
- a non-blocking system (because it does not need to be provisioned for speech paths or timeslots)

New Small Systems are supplied with a Software Daughterboard that is preconfigured with system and customer data. The Small System uses a Software Delivery card (PC Card) to upgrade system software and provide storage for a backup copy of customer data.

The Succession Signaling Server for a Succession 1000M Small System is installed separately. Refer to *Signaling Server: Installation and Configuration* (553-3001-212) for more information.

The Software Installation Program is automatically invoked during first-time installation of the system. This menu-driven program installs the software and makes the system operational.

## **Preprogrammed data**

When you first install a Small System, you must enter customer data into the overlay programs. For example, you must assign features to telephone keys, in order for those features to function correctly. Data can be preprogrammed. If you load preprogrammed data during the installation process, the system automatically configures some overlay entries on the telephones.

If the preprogrammed data does not apply to users at one site, you can revise the data on-site with a TTY. You can also revise the preprogrammed data remotely over a modem connection. You can start with a basic configuration, which is the least possible amount of data required for initial software programming. You must perform this step while you are working in the Software Installation Program.

### **Model telephones**

The system offers a variety of preprogrammed model telephone layouts. By using these telephone layouts (which serve as templates), technicians can perform a few simple steps at installation to activate multiple telephones.

### **Administration telephone**

If you use the default model layouts for telephones and trunk routes, you can use an administrative telephone to make adjustments to items such as the numbering plan and access codes. You do not need a TTY input terminal to program a Small System unless a custom layout is used.

You can use the M2616 and M2008 digital telephones for administrative functions. The administrative telephone can double as a user's working telephone.

### **Changing or removing preprogrammed data**

If preprogrammed data does not apply to users at a particular site, data can be revised on-site with a TTY or remotely over a modem connection. If desired, the user can start with the minimal amount of data required for initial software programming which is the configuration record. This step must be performed while the user is in the Software Installation Program.

### **Meridian Mail**

Meridian Mail comes preconfigured with preprogrammed extensions for mailboxes. If the numbering plan is being modified, then the mailboxes can be changed from any TTY used for Small System administration.

## **Set-Based Administration**

The Set-Based Administration feature simplifies system installation and administration by enabling a telephone set to perform several administrative and maintenance procedures. Use the Set-Based Administration feature to perform tasks such as changing data for specific features related to sets or changing Calling Party Name Display on a set.

For more information about Set-based Administration, refer to *Set-Based Administration* (553-3001-303).

## **Multiple-terminal access**

A Small System allows up to five users access to log in, load, and execute overlays simultaneously. For example, if you have expansion cabinets, users can access the system through the main or expansion cabinets at the same time.

Three Serial Data Interface (SDI) ports are provided on the main SSC card, while each expansion cabinet/chassis can be accessed through the three SDI ports on the SSC card of each IP expansion or the single SDI port available on the Fiber Receiver card of each fiber expansion.

The advantage of multiple-terminal access is that it allows for more efficient programming and maintenance of the system, especially when system components are located up to 3 km (1.8 mi) apart.

## Database Archive feature

The Software Installation program allows the archiving of databases that you can subsequently use to load a customer site. This feature allows you to configure multiple databases in an off-site lab environment. The Database Archive feature also allows you to save databases on a PC Card until the databases are required. You can load the database into the system using the PC Card.

The off-site programming of databases is subject to all security keycode restrictions. The off-site system must either use the security device that will be installed in the Small System at the customer site, or have its own keycodes for the feature set.

Refer to *Small System: Upgrade Procedures* (553-3011-258) and *Small System: Maintenance* (553-3011-500) for additional information.

## Supported applications

Small Systems support the following applications:

- Attendant Console (PC and M2250)
- Business Communications Manager
- Call Pilot
- Internet Telephones i2002, i2004, i2050
- Meridian Integrated RAN (MIRAN)
- Meridian Integrated Conference Bridge (MICB)
- Meridian Home Office
- Meridian Link
- Meridian Link Services
- Meridian Mail
- Meridian MAX
- Meridian/Succession Companion DECT (DMC8 version)
- Optivity Telephony Manager (OTM)

- Symposium Call Center Server
- Symposium Express Call Center
- Symposium Desktop Applications

## Data backup and restore methods

Small Systems support several methods to back up customer-configured data during normal system operation:

- on-site backup
  - to primary flash drive
  - to backup flash drive
  - to external PC Card
- remote backup over a modem connection, using the Customer Configuration Backup and Restore (CCBR) feature. The CCBR feature enables you to back up customer-configured data to an external IBM-type PC or a Macintosh computer over a modem connection.

If data becomes corrupt or inoperable, you can restore backed up data to the main database and primary flash drive from one of the following:

- external PC Card drive
- backup flash drive
- computer over a modem connection

For more information about database backup and restore methods, refer to *Small System: Maintenance* (553-3011-500).

## Support for IP connectivity

Both the Cabinet and Chassis systems support IP expansion, which provides IP interconnection between the system's main and expansion cabinets/chassis. This IP interconnection enables:

- increased Digital Trunking capacity
- survivable expansion
- Voice Distribution over Campus Data Network

### Increased Digital Trunking/SDI capacity

IP expansion provides increased networking capacity for Small Systems. Any IP expansion, when connected via 100BaseT or 100BaseF cable, can support digital trunks. A Cabinet system can support a total of 45 digital trunks. A Chassis system can support a total of 15 digital trunks.

IP expansions can support the following Common Equipment (CE) cards:

- 1.5MB DTI/PRI (NTAK09)
- 1.5MB TMDI (NTRB21)
- 2.0MB DTI (NTAK10)
- 2.0MB PRI (NTAK79)
- 2.0MB PRI (NTBK50)
- MISP (NTBK22)
- SDI/DCH (NTAK02) (only DCH is supported in IP expansion; ESDI AML, and TTY are not supported)

IP expansion also provides increased SDI/D-channel capacity: three SDI ports are provided with each IP expansion cabinet/chassis, and D-channel capacity increases to up to 16 D-channels per IP expansion.

Refer to “Fiber-optic and IP expansion” on [page 27](#) for a description of the hardware required for IP expansion.

## **Survivable IP expansion**

IP expansion cabinets/chassis can be configured to be survivable in the event of a link failure or a catastrophic failure of the main.

Based on the system configuration, if IP connectivity to the main is lost or a manual command is issued, an IP expansion can enter survival mode, in which it acts as a fully functional “stand-alone” system.

The number of survivable expansion cabinets/chassis allowed on one system is controlled through an Incremental Software Management (ISM) parameter, “Survivability”, which has a range of 0 - 4. The ISM parameter’s default value is zero.

## **Voice distribution over Campus Data Network**

IP expansion connectivity provides a high-capacity, cost-effective solution that can distribute Small Systems over a high-performance data network.

Full feature functionality and non-blocking architecture is maintained when Small Systems are distributed over high-performance data networks. This patented solution delivers the exceptional functionality and reliability of legacy systems, while delivering the benefits of voice and data convergence.

## **Package requirements**

IP connectivity is provided by IP Expansion (IPEX) package 295. If the IP Expansion package is restricted, IP connectivity between the main and IP expansion will be disallowed, whether or not IP daughterboards are connected to the main. CE-MUX Expansion is not separately packaged, but does depend on IP Expansion (IPEX) package 295.

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# Fiber-optic and IP expansion

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## Contents

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## Small System expansion

Both the Cabinet system and the Chassis system support fiber-optic and IP expansion. Up to four expansion cabinets or chassis can be connected to the main with fiber-optic cable or 100BaseT/F cable and located up to 3 km (1.8 mi) from the main. With the introduction of IP connectivity, IP expansion can be distributed over a campus data network.

For fiber-optic expansion, you require the following three basic components in addition to other hardware:

- Small System Controller (SSC) card in the main
- Fiber Expansion Daughterboard
- Fiber Receiver card in the expansion

For IP expansion, you require the following three basic components in addition to other hardware:

- Small System Controller (SSC) card in the main
- IP Expansion Daughterboards (minimum two)
- SSC card in the expansion

*Note:* For a complete list of required hardware, refer to *Small System: Planning and Engineering* (553-3011-120). For information on installing expansion cabinets/chassis, refer to *Small System: Installation and Configuration* (553-3011-210). For information on expanding an existing system, refer to *Small System: Upgrade Procedures* (553-3011-258).

## SSC card

For fiber-optic expansion, you must install an SSC card, containing Fiber Expansion Daughterboards, in slot 0 of the main.

For IP expansion, you must install an SSC card, containing IP Expansion Daughterboards, in slot 0 of the main. You must also install an SSC card, containing one IP Expansion Daughterboard, in slot 0 of the expansion.

*Note:* The SSC card (NTDK20EA or later) is required for the main cabinet and all chassis. The SSC card (NTDK20CA or later) is required for expansion cabinets.

## Fiber Expansion and IP Expansion Daughterboards

You must install Fiber Expansion or IP Expansion Daughterboards on the SSC card. The SSC card supports both Fiber Expansion Daughterboards and IP Expansion Daughterboards. The daughterboard configurations supported are as follows:

- two single-port daughterboards
- two dual-port daughterboards

Each single-port daughterboard supports one expansion cabinet/chassis. Each dual-port daughterboard supports up to two expansion cabinets/chassis.

### **Fiber Expansion Daughterboard**

The Fiber Expansion Daughterboards support the following fiber-optic cable solutions between expansion cabinets/chassis:

- 10-meter solution
- 3-kilometer single-mode glass fiber solution
- 3-kilometer multi-mode glass fiber solution

### **IP Expansion Daughterboard**

The IP Expansion Daughterboards support the following IP cable solutions between expansion cabinets/chassis:

- 100-meter solution
- 2-kilometer solution
- Customer Local Area Network (LAN) solution

### **Fiber Receiver card**

You must install a Fiber Receiver card in slot 0 of each expansion cabinet or expansion chassis. Match the correct Fiber Receiver card with the Fiber Expansion Daughterboard installed on the SSC card in the main.

Like the Fiber Expansion Daughterboards, the Fiber Receiver cards support the following fiber-optic cable solutions:

- 10-meter solution
- 3-kilometer single-mode glass fiber solution
- 3 -kilometer multi-mode glass fiber solution

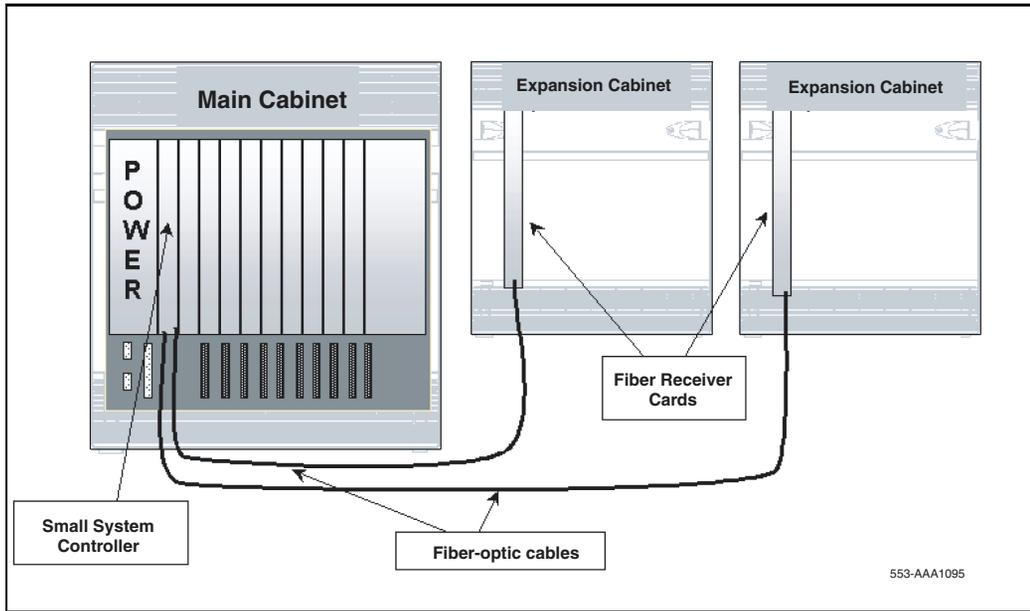
## **Expansion scenarios**

The expansion capabilities for Small Systems allow great flexibility in the design and configuration of a system. Figures 6 through 11 illustrate the following options:

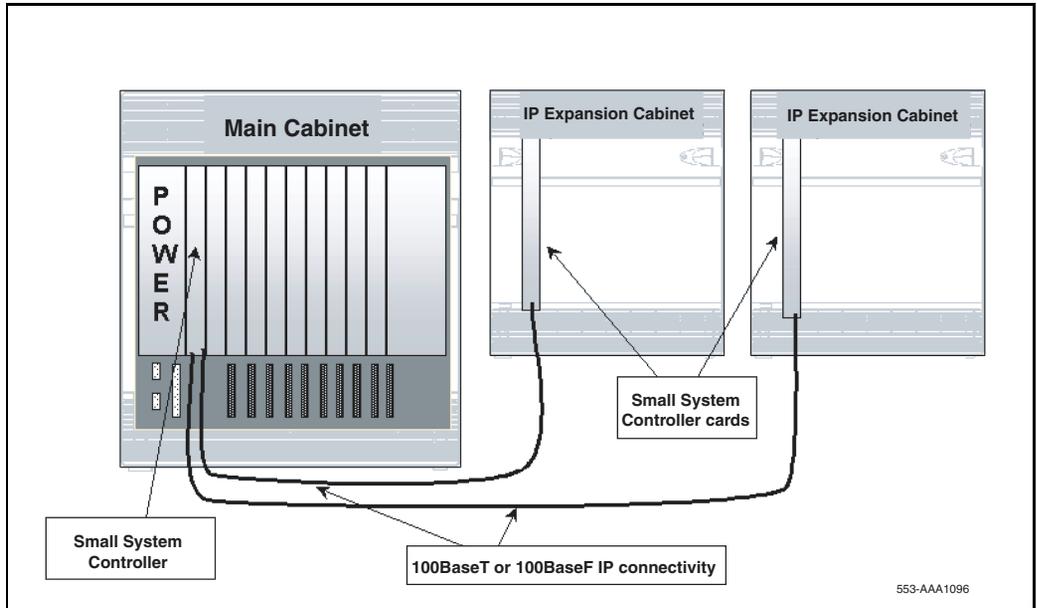
- Cabinet system fiber expansion (see Figure 6)
- Cabinet system IP expansion (see Figure 7)

- chassis connected to chassis expander (see Figure 8)
- chassis connected to expansion chassis using fiber-optic connectivity (see Figure 9)
- chassis (with chassis expander) connected to expansion chassis (with chassis expander) using fiber-optic connectivity (see Figure 10)
- Chassis system IP expansion (see Figure 11)

**Figure 6**  
**Main cabinet connected to expansion cabinets with fiber-optic cable**

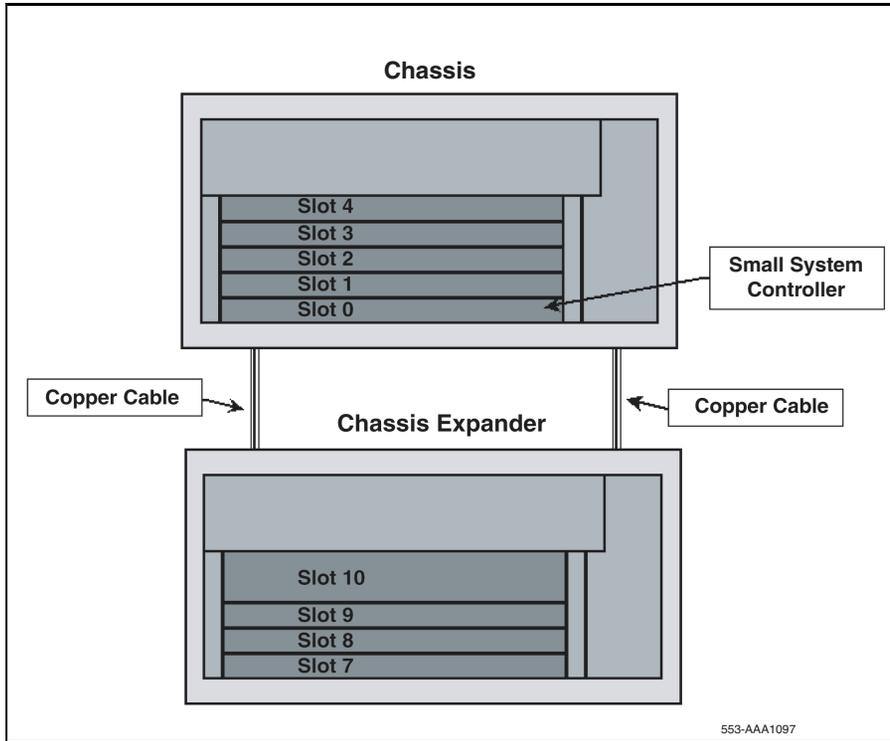


**Figure 7**  
**Main cabinet connected to expansion cabinets with IP connectivity**



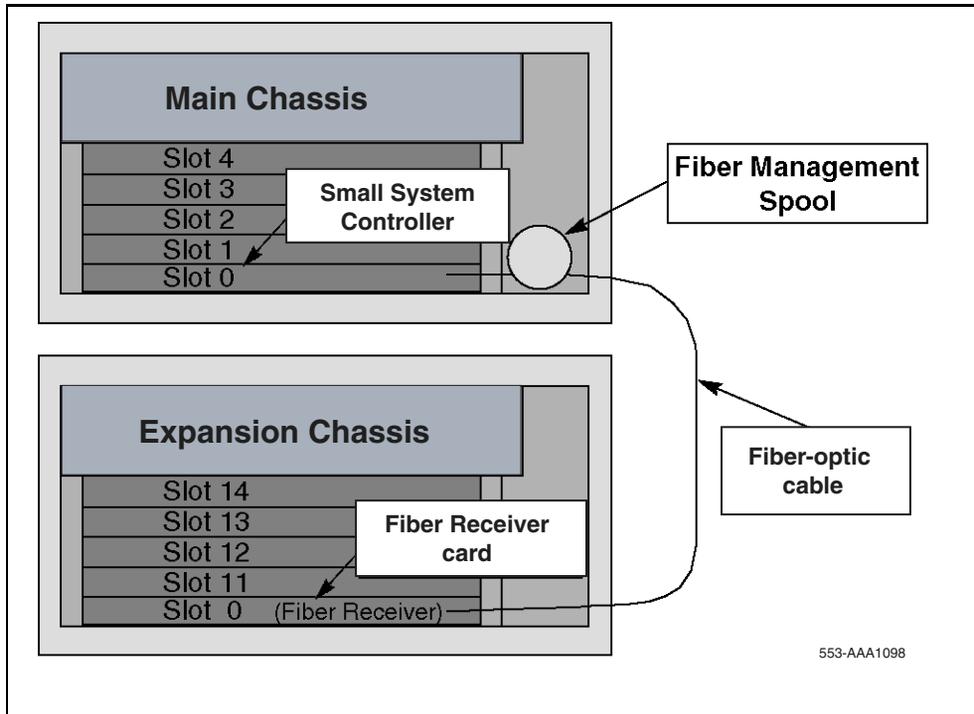
**Note:** In Figures 6 and 7, slots 1 to 10 are available in the main cabinet, and slots 11 to 20 and 21 to 30 are available in the two expansion cabinets.

**Figure 8**  
**Chassis connected to a chassis expander**



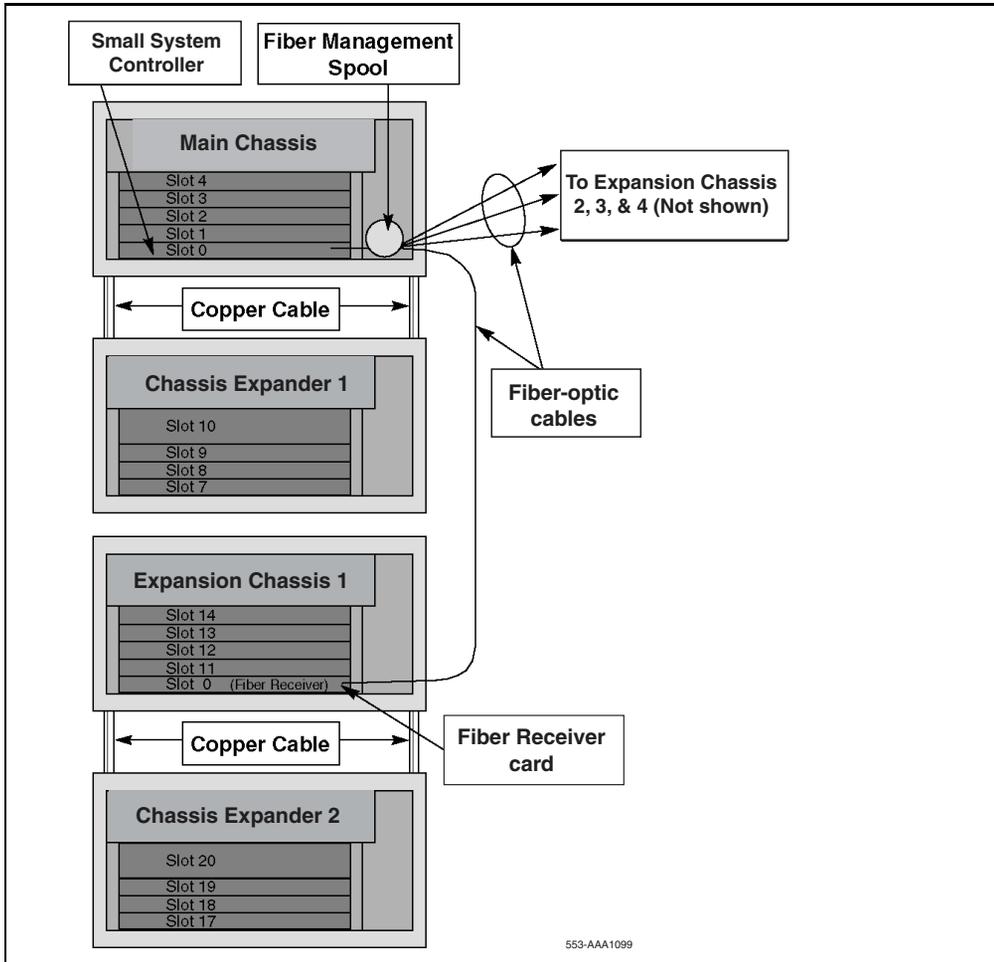
**Note:** In Figure 8, slots 0 to 4 are available in the chassis. Slot 0 is designed to contain the SSC card. Slot 4 is designed to contain the NTDK16 48-port Digital Line Card. This is equivalent to three NT8D02 Digital Line Cards (slots 4 to 6). Slots 7 to 10 are available in the chassis expander.

**Figure 9**  
**Chassis connected to an expansion chassis**



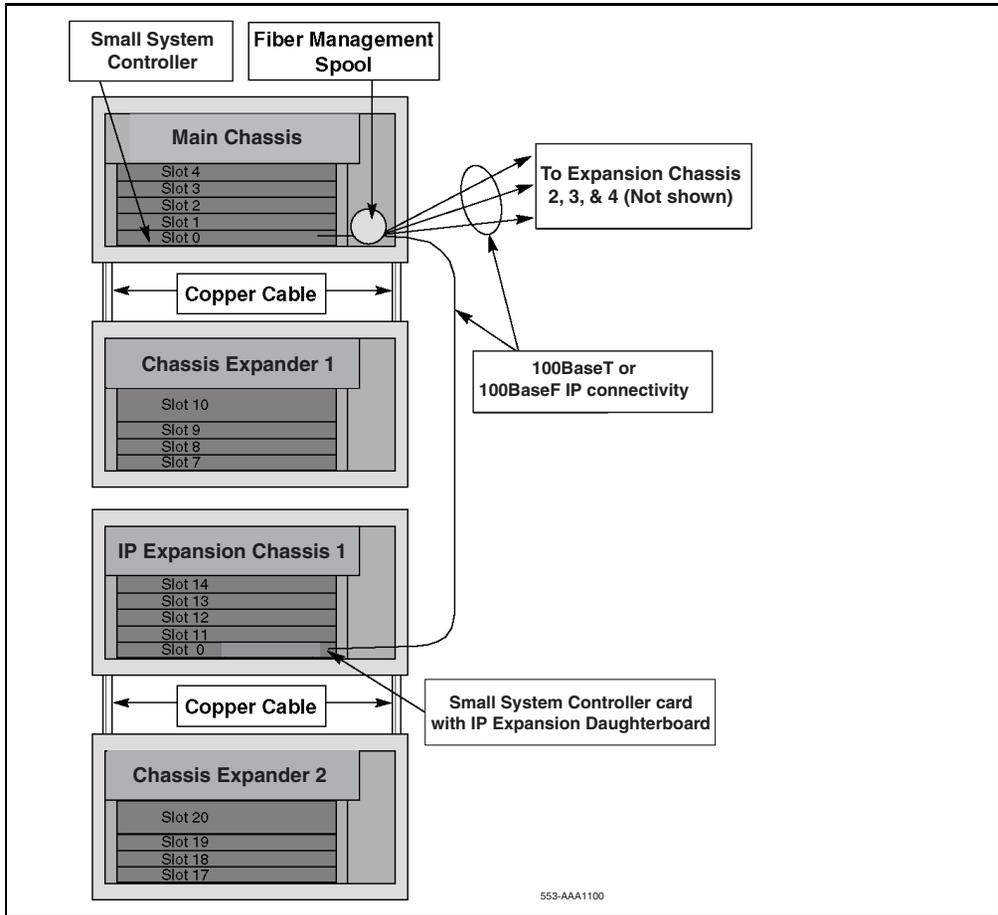
**Note:** In Figure 9, slots 0 to 4 are available in the chassis. Slots 4 and 14 contain the NTDK16 48-port Digital Line card. Slots 11 to 14 are available in the expansion chassis. Slot 0 in the expansion chassis contains the Fiber Receiver card.

**Figure 10**  
**Chassis system fiber-optic expansion configuration including chassis expander**



**Note:** In Figure 10, slots 0 to 4 are available in the chassis. Slot 4 contains the NTDK16 48-port Digital Line card. Slots 7 to 10 are available in Chassis Expander 1. Slots 11 to 14 are available in Expansion Chassis 1. Slot 0 in Expansion Chassis 1 contains the Fiber Receiver card and slot 14 contains the NTDK16 48-port Digital Line card. Slots 17 to 20 are available in Chassis Expander 2.

**Figure 11**  
**Chassis system IP expansion configuration including chassis expander**



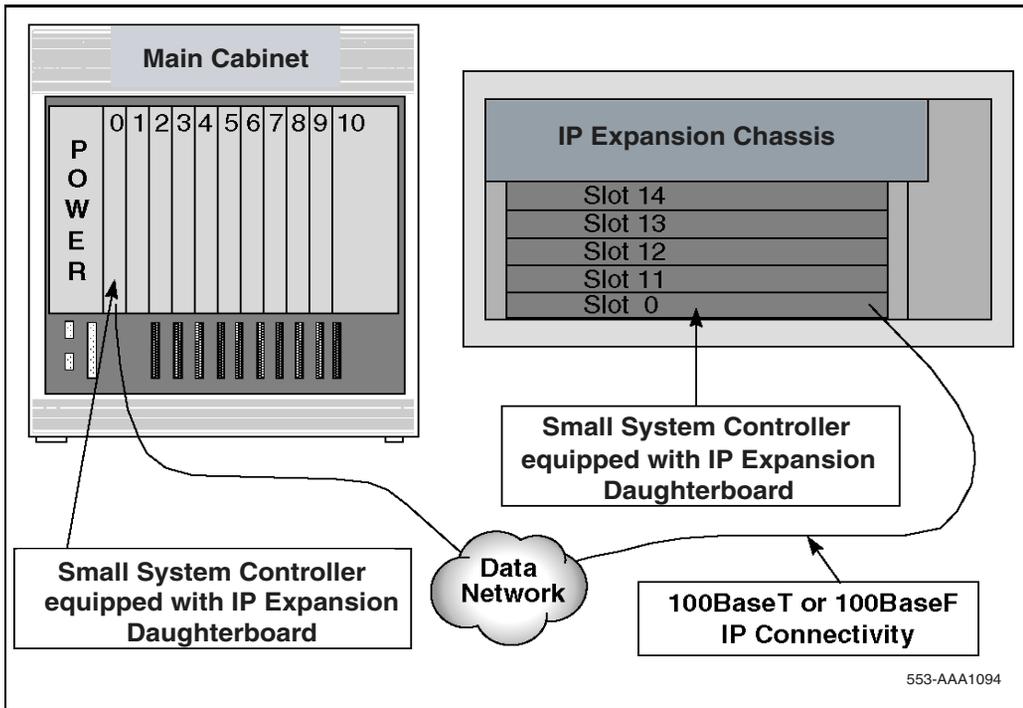
**Note:** In Figure 11, slots 0 to 4 are available in the chassis. Slot 0 contains the SSC card equipped with an IP Expansion Daughterboard. Slot 4 contains the NTDK16 48-port Digital Line card. Slots 7 to 10 are available in Chassis Expander 1. Slots 11 to 14 are available in Expansion Chassis 1. Slot 0 in Expansion Chassis 1 contains the SSC card equipped with an IP Expansion Daughterboard, and slot 14 contains the NTDK16 48-port Digital Line card. Slots 17 to 20 are available in Chassis Expander 2.

## Cabinet and Chassis system mix-and-match expansion

In a mix-and-match scenario, a chassis can be connected to IP expansion cabinet(s). Similarly, a main cabinet can be connected to IP expansion chassis.

Figure 12 shows an IP configuration in which a main cabinet is connected to an expansion chassis using IP connectivity.

**Figure 12**  
**Cabinet and Chassis system IP expansion configuration**



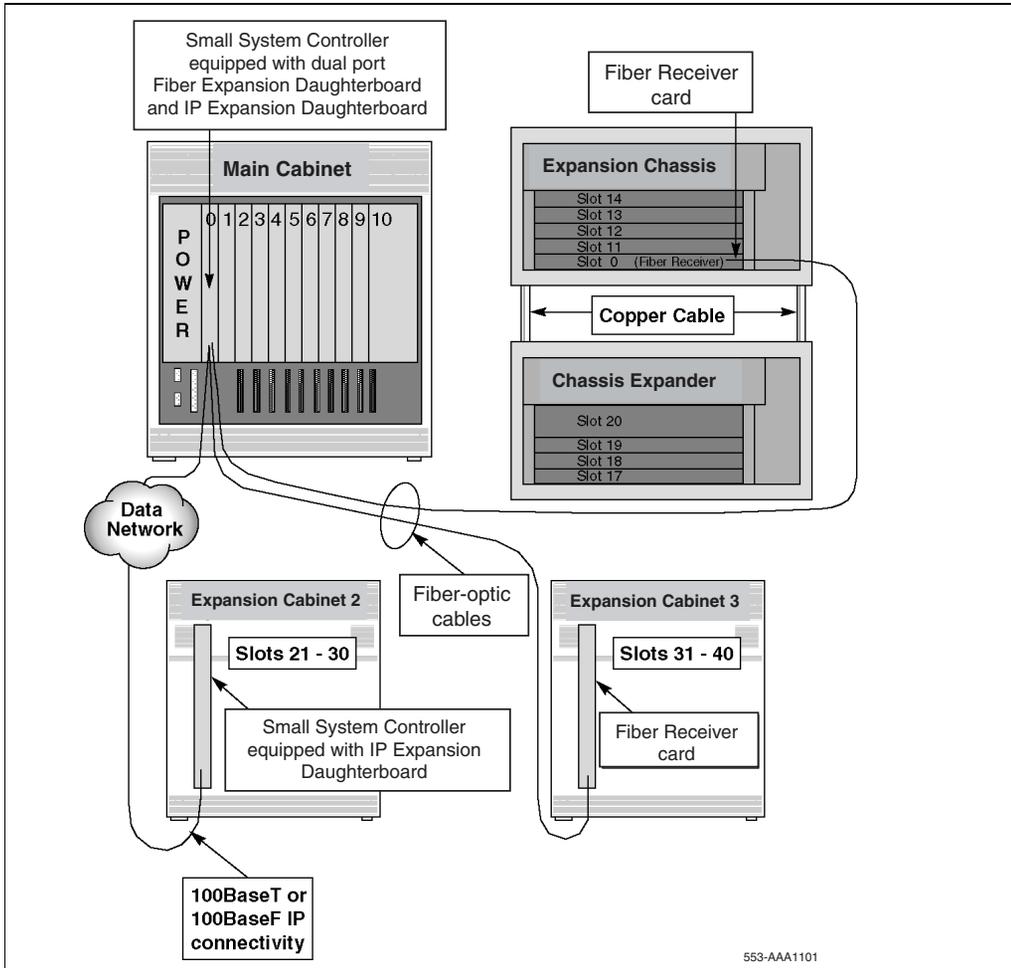
**Note:** In Figure 12, slots 0 to 10 are available in the main cabinet and slots 11 to 14 are available in the expansion chassis. Slot 0 of the expansion chassis contains an SSC card equipped with an IP Expansion Daughterboard. Slot 14 of the expansion chassis contains the NTDK16 48-port Digital Line Card.

Figure 13 shows another example of a “mix-and-match” configuration in which a main cabinet uses both fiber and IP cabling to connect two expansion cabinets and one expansion chassis. The expansion chassis is equipped with a chassis expander.

**Note:** Figure 13 is only an example of one of many possible configurations using cabinets and chassis.

In this example, the SSC card in the main cabinet has one dual-port Fiber Expansion Daughterboard installed in the top connector and one single-port IP Expansion Daughterboard installed in the bottom connector. The dual-port Fiber Expansion Daughterboard in the top connector provides card slots 11–20 and 31–40. The single-port IP Expansion Daughterboard in the bottom connector provides card slots 21–30.

**Figure 13**  
**Cabinet and Chassis system IP and fiber expansion configuration**



**Note:** In Figure 13, slots 0 to 10 are available in the main cabinet, slots 11 to 14 in the expansion chassis, and slots 17 to 20 in the chassis expander. Slots 21 to 30 are available in Expansion Cabinet 2 via the data network. Slots 31 to 40 are available in Expansion Cabinet 3. Slot 0 in the expansion chassis contains the Fiber Receiver card and slot 14 the NTDK16 48-port Digital Line card.



Meridian 1, Succession 1000M

## **Small System**

### Overview

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Publication number: 553-3011-010

Document release: Standard 1.00

Date: October 2003

Produced in Canada

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