

MiCollab Advanced Messaging

Dialogic PCI Express and Euro PCI Express

Linecards Installation and Replacement

Spare Parts Document

For version 6.1 and above

Notice

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Contents

| | |
|------------------------------------------------------------------------------------------------|-----------|
| Preface | 5 |
| References | 5 |
| Documentation | 5 |
| Documentation Updates | 6 |
| Help | 6 |
| Document Conventions | 6 |
| Frequently Used Terms | 7 |
| Overview | 9 |
| Electrostatic Discharge (ESD) Warning | 9 |
| Gathering Tools and Equipment | 9 |
| Dialogic D/41JCT-LS and D/41 JCT-LS Euro PCI Express Linecard Technical Specifications | 11 |
| Cabling D/41 JCT-LS Linecards to the Telephone System | 12 |
| Dialogic D/42JCT-U and D/82JCT-U PCI Express Linecard Technical Specifications | 14 |
| D/42JCT U-Linecard | 14 |
| Understanding D/42 and D/82 Linecard Identification | 15 |
| Cabling D/42JCT-U and D/82JCT-U PCI Express Linecards to the Telephone System | 16 |
| Dialogic D/120JCT-LS and D/120JCT-LS Euro PCI Express Linecard Technical Specifications | 19 |
| Cabling D/120JCT-LS PCI Express Linecards to the Telephone System | 20 |
| Dialogic D/240JCT-T1 PCI Express Linecard Technical Specifications | 22 |
| Cabling D/240JCT-T1 PCI Express Linecards to the Telephone System | 23 |
| Dialogic D/480JCT-T1 PCI Express Linecard Technical Specifications | 25 |
| Cabling D/480JCT-T1 PCI Express Linecards to the Telephone System | 27 |
| Preparing Dialogic PCI Express Linecards for Installation | 28 |
| Assigning the Linecard Identification Number | 28 |
| Configuring the Default Line State (D/41 and D/120 only) | 29 |
| Removing the Slot Retainer Bracket | 29 |
| Configuring the Power Budgeting Jumper | 29 |
| Installing Dialogic PCI Express Linecards in the Platform | 31 |

| | |
|-------------------------------------------------------------------------------------|-----------|
| Installing the CT Bus Cable | 32 |
| Installing Dialogic Software | 33 |
| Configuring Dialogic PCI Linecards in Dialogic Configuration Manager – DCM | 34 |
| Appendix A—Manually Adding a Linecard to the Configured Devices List | 36 |
| Addendum B—Configuring the D/42JCT or D/82JCT for Your Station Set Emulation | 37 |

Preface

This document is written for Mitel certified MiCollab Advanced Messaging (MiCollab AM) technicians who are experienced with MiCollab AM and are familiar with its procedures and terminology. This book assumes you are familiar with MiCollab AM and the Microsoft Windows® operating system.

This installation guide consists of the following parts:

- An Overview of the Dialogic PCI Express linecards
- Dialogic D/41 JCT PCI Express linecard specifications and configurations
- Dialogic D/42 and D/82 JCT PCI Express linecard specifications and configurations
- Dialogic D/120 JCT PCI Express linecard specifications and configurations
- Dialogic D/240 JCT PCI Express linecard specifications and configurations
- Dialogic D/480 JCT PCI Express linecard specifications and configurations
- Installing the linecard in the Call Server platform
- Configuring the linecard for service in the Call Server platform

References

A catalog of technical documentation is included on the MiCollab AM Installation Media. If you are installing any advanced applications, such as Networking and Fax Server applications, you should refer to the appropriate technical documentation for application and installation information.

Documentation

The technical documentation is produced in the PDF format and requires the PDF reader to view it. The documentation set for this MiCollab AM includes the following documents and resources:

- **Developer Resources.** Contains programming guides and API references for developers for integrating the server clients and web applications with MiCollab AM.
- **Integration Technical Notes (ITN).** Contains a set of guides that describe the integration methods and instructions for a variety of phone systems to work with MiCollab AM. The ITNs are generally used by resellers or administrators who are experienced with MiCollab AM and familiar with the integration procedures and terminology.
- **Quick Reference Card (QRC).** Contains shortcuts and quick instructions telling subscribers how to access and use the messaging system.
- **Server Documentation.** Available as a PDF only. Contains administrative guides for administrators about installing, configuring, and administering the messaging system, and user guides for subscribers about accessing the messaging system and checking and sending messages.

- **Spare Parts Documentation.** Contains a set of guides that describe the instructions for installing and configuring hardware parts to work with MiCollab AM. These documents are written for Mitel certified MiCollab AM technicians who are experienced with MiCollab AM and familiar with the procedures and terminology.
- **Software Release Notice (SRN).** This notice introduces the new features, capabilities, and hardware/software requirements for the corresponding MiCollab AM version.

For more detailed documents, refer to the following list of references:

Table 1. References

| Document Type | Document Title |
|---------------------------|---------------------------------------------------------|
| Server Documentation | System Administration Guide |
| Server Documentation | System Installation Guide |
| Spare Parts Documentation | Hardware Warranty Program Guide |
| Spare Parts Documentation | Installation and Replacement Guides for Aculab/Dialogic |

Documentation Updates

Documentation updates may be available from the following sources:

- Mitel certified technicians can view or download documents and program files from our partner web site: connect.mitel.com/connect

Help

The primary source of information about MiCollab AM is the online help available within any of its administrative utilities. You can access **Help** as follows:

- Click the **Help** button in the dialog box or window in which you are working
- Press the **F1** key at any time.

Document Conventions

The following conventions are used in this document:

- **Key Names.** Names of keys on the keyboard are shown in a box.

Example: **Enter**

When two keys must be pressed simultaneously, they are joined by a + sign.

Example: **Alt + Tab**

- **Reference to Document.** *Italics* fonts can also signify the titles of other documents.

Example: Refer to *System Installation Guide*.

- **UI Element Names.** Names of UI elements such as dialog windows, screens, menu items, tabs, buttons, icons, etc. are shown in bold.

Example: On the **Startup** screen, click the **Start** icon.

- **User Input.** Information required to be typed is shown in italics.

Example: Type the password *voicemail*.

- **Warning, Caution, Important, and Notes.** Text for the contents that require attention are shown as follows:

WARNING A warning paragraph advises you of circumstances that can result in the loss of data, harm to the system server platform, or personal harm.

CAUTION Failure to follow these recommendations can result in unauthorized access to the system and consequent loss of data.

IMPORTANT An important paragraph gives decision-making information or informs you of the order in which tasks need to be completed.

NOTE A note gives additional information, provides an explanation, or indicates an exception to the information in the preceding text.

Frequently Used Terms

Table 2. Frequently Used Terms

| Terms | Description |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| System Server | <p>Term refers to an organization's computer platform(s) that have MiCollab AM software installed and handles the core system functions such as storing messages, database.</p> <p>It can also refer generically to the System Server platform, the Call Server platform, or both. The term is most often used to describe a software or hardware installation or configuration practice where the role of the server platform is not specifically expressed.</p> |
| Call Server | <p>Term refers to an organization's computer platforms that have MiCollab AM software installed and serve as the interface to the system (PBX). The Call Server(s)</p> |

interface with the System Server for the purpose of accessing messages, and database.

Overview

This document describes how to install or replace one or more Dialogic® PCI Express or Euro PCI Express linecards in a Call Server platform. The information in this document pertains to platforms running MiCollab AM version 5.0 and later.

Specific information pertaining to each type of linecard is contained within a separate section of this document for each linecard type. General information about the Dialogic PCI Express linecard such as installing the card in the system and installing Dialogic software is located in the section specific to the required task. The PCI Express form factor is also expressed as PCIe.

Mitel recommends that you read the section specific to the linecard you are installing, and then read remainder of the document before disassembling the hardware.

IMPORTANT Hardware conflicts and configuration issues can occur between hardware devices installed in a computer platform. Because Mitel sells Dialogic PCI Express linecards as a kit for installation in computer platforms that we have not tested, the compatibility of these cards in your computer platform cannot be guaranteed. Mitel can offer troubleshooting advice and assistance to the best of its knowledge and ability. However, you are ultimately responsible for resolving all hardware conflicts and configuration issues in the platform.

NOTE Dialogic ISA linecards are not supported in MiCollab AM versions 5.0 and later. If ISA linecards are installed in the platform, they must be removed.

Electrostatic Discharge (ESD) Warning

Computer components are extremely sensitive to electrostatic discharge (ESD). You must wear an anti-static wrist strap and install the linecard at an ESD-safe workstation. Do not open the static-protective container until necessary. Before removing the linecard from the static-protective container, touch the container to a grounded, unpainted metal surface for at least two seconds (this drains the static electricity from the container and from your body). Turn off and unplug your computer before removing the case.

Gathering Tools and Equipment

Before you begin disassembling the Call Server platform, verify that you have the following required tools and equipment:

- MiCollab AM Installation Media
- One or more Dialogic PCI Express or Euro PCI Express linecards specific to the telephony resources you are installing
- CT Bus cable to connect multiple PCI Express cards
- New Feature file or License key to add additional lines

- Linecord adapters, if necessary

Dialogic D/41JCT-LS and D/41 JCT-LS Euro PCI Express Linecard Technical Specifications

Table 3 lists the technical specifications for the Dialogic D/41JCT-LS and D/41JCT-LS Euro PCIe linecards approved for use with MiCollab AM. Figure 1 shows the general layout of these linecards.

NOTE Your local telephone company may require some of these specifications. For example, in the United States, some telephone companies require an FCC registration number if the linecard is connected directly to central office (CO) lines. Contact your local telephone company for its requirements.

Table 3. D/41JCT-LS and D/41JCT-LS Euro PCI Express Linecard Technical Specifications

| Feature | Specification |
|--------------------------|------------------------------------------------------------------------------------------|
| Number of Ports | 1-4; the MiCollab AM port assignment is determined by the linecard identification number |
| Dialing | DTMF |
| FCC registration number | US: EBZUSA-75385-VM-T |
| Analog network interface | On-board loop start interface circuits |
| Voice coding | PCM |
| Host interface bus | PCIe x1 slot or higher 12VDC 450ma Max |

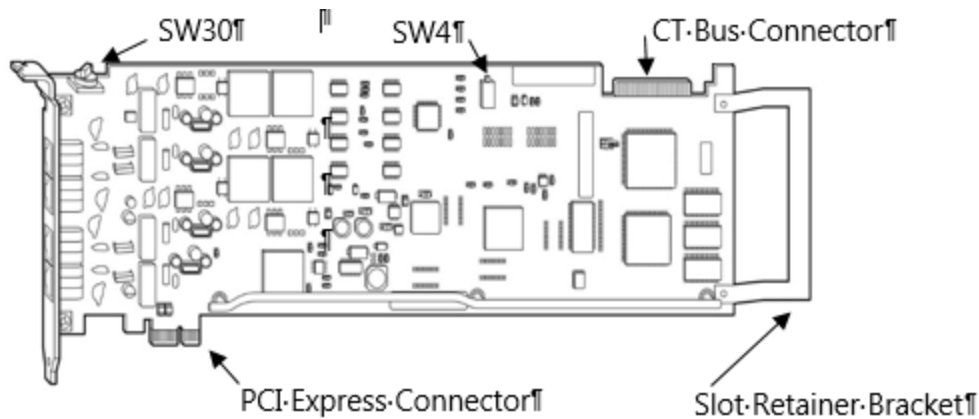


Figure 1. Layout of the D/41-JCT-LS PCIe Linecard

Cabling D/41 JCT-LS Linecards to the Telephone System

Once the D/41JCT-LS linecard are installed in the platform, you can cable the platform to the telephone system. MiCollab AM assigns port numbers in ascending order based on the linecard identification number.

For example:

A D/41JCT-LS linecard to which you assigned the linecard ID 1 is assigned line numbers 1–4; a D/41JCT-LS linecard to which you assigned the linecard ID 2 is assigned line numbers 5–8 ([Figure 2](#)). Refer to the [Assigning the Linecard Identification Number](#) section for information on assigning the linecard ID.

Keep this assignment scheme in mind when connecting each D/41JCT-LS linecard to the telephone system.

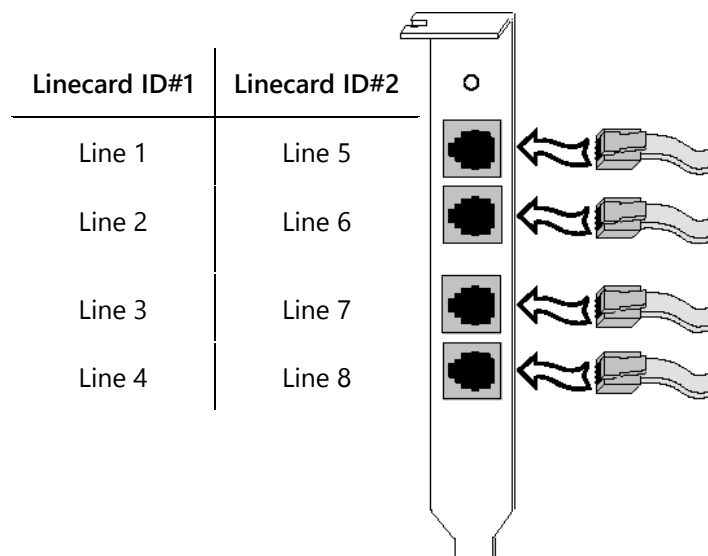


Figure 2. Line Assignment Scheme for the D/41JCTU-LS Linecard

There are four RJ-11 connectors on the rear bracket of the D/120JCT-LS linecards.

Pin 4: Tip 1
Pin 3: Ring 1

Figure 3 shows the pin-out of these modified connectors.

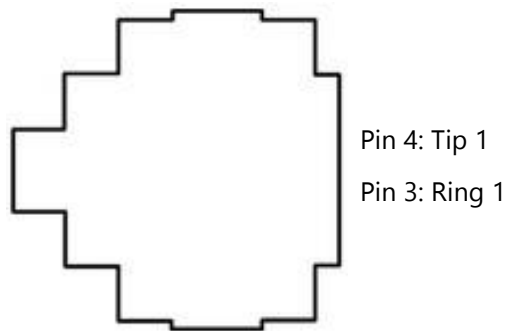


Figure 3. Pin-outs of the Modified RJ-11 Connector

D/41JCT-LS linecards require RJ-11 connectors to interface with the telephone system. You may need linecord adapters to connect to the Cal Server platform depending on the type of line interface installed at your site. If linecord adapters are required and not included with the linecards, please contact your Customer Service representative.

To cable D/41JCT-LS linecards

Plug the linecords from the telephone system into the RJ-11 connectors on the D/41JCT-LS.

Or,

If the provided telephone line interface is not an RJ-11 connector, plug the linecords into the appropriate linecord adapter, and then plug the RJ-11 linecord(s) of the adapter into the RJ-11 connector of the D/41JCT-LS.

Dialogic D/42JCT-U and D/82JCT-U PCI Express Linecard Technical Specifications

D/42JCT U-Linecard

Table 4 lists the technical specifications for the Dialogic D/42JCT-U PCIe linecard approved for MiCollab AM. Figure 4 shows the general layout of these linecards.

Table 4. D/42JCT-U PCI Express Linecard Technical Specifications

| Feature | Specification |
|----------------------------------|----------------------------------------------------------------------------|
| Number of ports | 4 ports per linecard |
| Total ports/system | 16 (if only D/42JCT-U are installed) |
| Maximum boards/system | 4 linecards |
| Telecommunications registrations | US: EBZUSA-34995-CE-T Canada: IC: 885 10638 A |
| Analog network interface | On-board loop start interface circuits |
| Voice coding | PCM (supports OKIADPCM, G.711 μ -law, G.711 A-law, PCM and GSM codecs) |
| Host interface bus | PCIe x1 slot (w/power budgeting) or x4 slot and greater 12VDC 450ma |

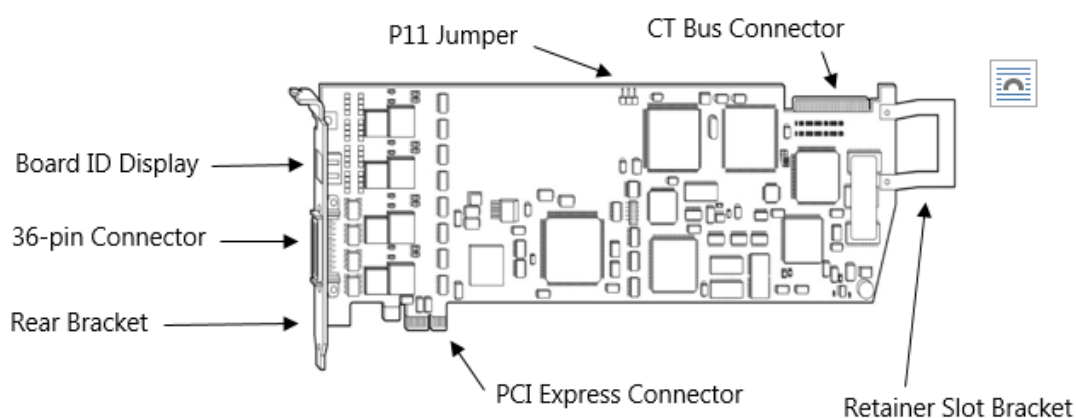


Figure 4. Layout of the D/42JCT-U PCIe Linecard

Table 5 lists the technical specifications for the Dialogic D/82JCT-U PCIe linecard approved for MiCollab AM. Figure 5 shows the general layout of these linecards.

Table 5. D/82JCT-U PCI Express Linecard Technical Specifications

| Feature | Specification |
|----------------------------------|----------------------------------------------------------------------------|
| Number of ports | 8 ports per linecard |
| Total ports/system | 64 |
| Maximum boards/system | 8 linecards |
| Telecommunications registrations | US: EBZUSA-34995-CE-T Canada: IC: 885 10638 A |
| Analog network interface | On-board loop start interface circuits |
| Voice coding | PCM (supports OKIADPCM, G.711 μ -law, G.711 A-law, PCM and GSM codecs) |
| Host interface bus | PCIe x1 slot (w/power budgeting) or x4 slot and greater 12VDC 450ma |

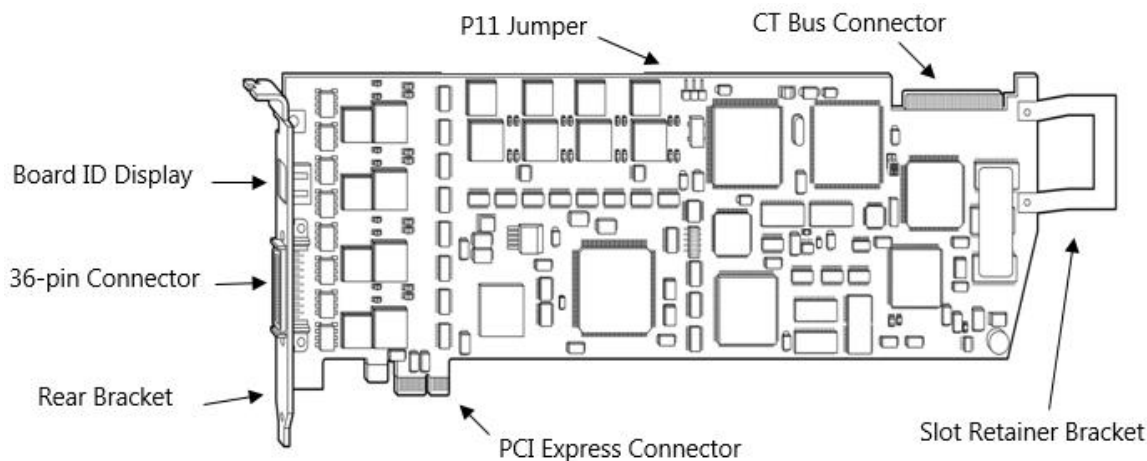


Figure 5. Layout of the D/82JCT-U PCIe Linecard

Understanding D/42 and D/82 Linecard Identification

Before installing a Dialogic D/42JCT-U or D/82JCT-U PCI Express linecard in the Call Server platform, familiarize yourself with the board identification-numbering scheme of these cards. Each D/42JCT-U or D/82JCT-U PCI Express linecard is assigned a Board ID number automatically as the Call Server platform starts. After the start-up sequence has finished, the Board ID appears on a two-character LED display located on the card's rear bracket.

NOTE The interval between system start-up and the Board ID appearing on the LED display varies with system configurations. You may have to wait up to several minutes for the Board ID to appear.

Cabling D/42JCT-U and D/82JCT-U PCI Express Linecards to the Telephone System

Each D/42JCT-U or D/82JCT-U PCI Express linecard connects to the telephone system through a Dialogic D/82-U PBX interface cable assembly as shown in Figure 4. A cable assembly ships with each D/42 or D/82 linecard.

NOTE The cable assembly is less than 18 inches (45.7 cm). A 25-pair cable with RJ-21 Amphenol ends may be required to connect to the telephone system's distribution frame.

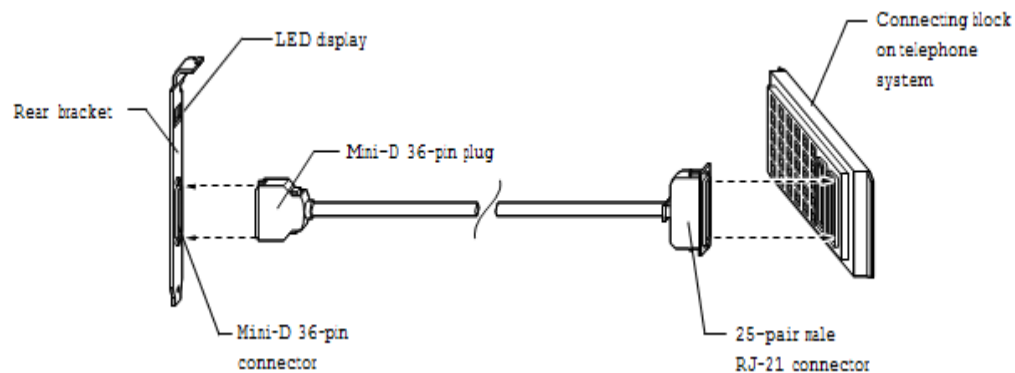


Figure 6. Cabling a D/42JCT-U, D/82JCT-U, or D/82JCT-UNIV linecards to the telephone system

To cable Dialogic D/42JCT-U, D/82JCT-U, or D/82JCT-UNIV linecards to the telephone system:

- Attach the 25-pair male RJ-21 plug to the wired RJ-21 connector of the telephone system.
- Attach the mini-D 36-pin plug to the mini-D 36-pin connector on the rear bracket of the linecard.

NOTE Country-specific linecord adapters may be required to connect the Call Server platform to the telephone system. If these adapters are required and not included with the linecards, please contact a telecom equipment supplier in your area.

Table 6 details the wiring connections for both 4-wire and 2-wire digital stations. The 4-wire stations use both the odd and even wire pairs, while the 2-wire stations connect to the even numbered pairs only. Note that because the D/42JCT-U linecard has half the capacity of the D/82 linecards, it uses only the first four 4-wire or 2-wire pairs in the D/82-U cable assembly.

Table 6. Dialogic D/42 and D/82 wire connections

| Pair | Color | 4-wire | 2-wire | Usage |
|------|--------------|-------------|------------|-------------------------|
| 1 | White/Blue | T (Port 1) | | D/42 and D/82 linecards |
| | Blue/White | R (Port 1) | | D/42 and D/82 linecards |
| 2 | White/Orange | T1 (Port 1) | T (Port 1) | D/42 and D/82 linecards |
| | Orange/White | R1 (Port 1) | R (Port 1) | D/42 and D/82 linecards |
| 3 | White/Green | T (Port 2) | | D/42 and D/82 linecards |
| | Green/White | R (Port 2) | | D/42 and D/82 linecards |
| 4 | White/Brown | T1 (Port 2) | T (Port 2) | D/42 and D/82 linecards |
| | Brown/White | R1 (Port 2) | R (Port 2) | D/42 and D/82 linecards |
| 5 | White/Slate | T (Port 3) | | D/42 and D/82 linecards |
| | Slate/White | R (Port 3) | | D/42 and D/82 linecards |
| 6 | Red/Blue | T1 (Port 3) | T (Port 3) | D/42 and D/82 linecards |
| | Blue/Red | R1 (Port 3) | R (Port 3) | D/42 and D/82 linecards |
| 7 | Red/Orange | T (Port 4) | | D/42 and D/82 linecards |
| | Orange/Red | R (Port 4) | | D/42 and D/82 linecards |
| 8 | Red/Green | T1 (Port 4) | T (Port 4) | D/42 and D/82 linecards |
| | Green/Red | R1 (Port 4) | R (Port 4) | D/42 and D/82 linecards |
| 9 | Red/Brown | T (Port 5) | | D/82 linecards only |
| | Brown/Red | R (Port 5) | | D/82 linecards only |
| 10 | Red/Slate | T1 (Port 5) | T (Port 5) | D/82 linecards only |
| | Slate/Red | R1 (Port 5) | R (Port 5) | D/82 linecards only |
| 11 | Black/Blue | T (Port 6) | | D/82 linecards only |
| | Blue/Black | R (Port 6) | | D/82 linecards only |
| 12 | Black/Orange | T1 (Port 6) | T (Port 6) | D/82 linecards only |

| | | | | |
|----|--------------|-------------|------------|---------------------|
| | Orange/Black | R1 (Port 6) | R (Port 6) | D/82 linecards only |
| 13 | Black/Green | T (Port 7) | | D/82 linecards only |
| | Green/Black | R (Port 7) | | D/82 linecards only |
| 14 | Black/Brown | T1 (Port 7) | T (Port 7) | D/82 linecards only |
| | Brown/Black | R1 (Port 7) | R (Port 7) | D/82 linecards only |
| 15 | Black/Slate | T (Port 8) | | D/82 linecards only |
| | Slate/Black | R (Port 8) | | D/82 linecards only |
| 16 | Yellow/Blue | T1 (Port 8) | T (Port 8) | D/82 linecards only |
| | Blue/Yellow | R1 (Port 8) | R (Port 8) | D/82 linecards only |

Dialogic D/120JCT-LS and D/120JCT-LS Euro PCI Express Linecard Technical Specifications

Table 7 lists the technical specifications for the Dialogic D/120JCT-LS and D/120JCT-LS Euro PCI Express linecards approved for use with MiCollab AM. Figure 7 shows the general layout of these linecards.

NOTE Your local telephone company may require some of these specifications. For example, in the United States, some telephone companies require an FCC registration number if the linecard is connected directly to central office (CO) lines. Contact your local telephone company for its requirements.

Table 7. D/120JCT-LS PCI Express Linecard Technical Specifications

| Feature | Specification |
|--------------------------|-------------------------------------------------------------------------------------------|
| Number of Ports | 1-12; the MiCollab AM port assignment is determined by the linecard identification number |
| Dialing | DTMF |
| FCC registration number | US: EBZUSA-34827-KN-N |
| Analog network interface | On-board loop start interface circuits |
| Voice coding | PCM |
| Host interface bus | PCIe x1 slot (w/pwr budgeting) or x4 slot or higher 12VDC 450ma |

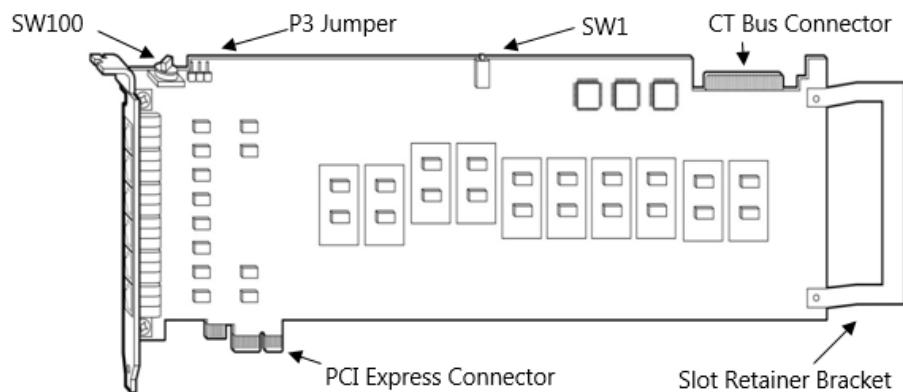


Figure 7. Layout of the D/120JCT-LS PCI Express Linecard

Cabling D/120JCT-LS PCI Express Linecards to the Telephone System

Once the D/120JCT-LS linecards are installed in the platform, you can cable the platform to the telephone system. MiCollab AM assigns port numbers in ascending order based on the linecard identification number.

For example,
 A D/120JCT-LS linecard to which you assigned the linecard ID 1 is assigned line numbers 1–12; a D/120JCT-LS linecard to which you assigned the linecard ID 2 is assigned line numbers 13–24 (Figure 8). Refer to the [Assigning the Linecard Identification Number](#) section for information on assigning the linecard ID.

Keep this line number scheme in mind when connecting each D/120JCT-LS linecard to the telephone system.

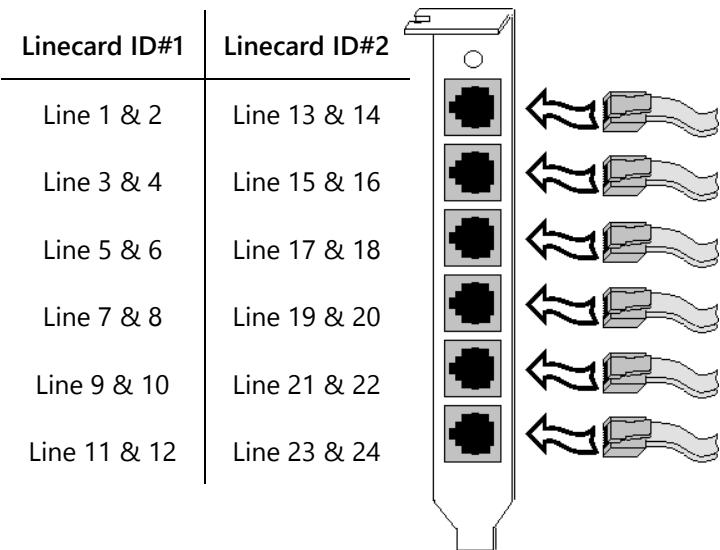


Figure 8. The MiCollab AM Line Assignment Scheme for D/120JCT-LS Linecard

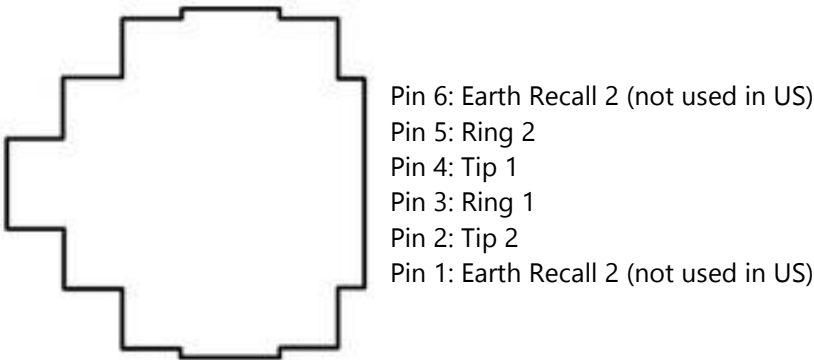


Figure 9. Pin-outs of the Modified RJ-14 Connector

NOTE Pins 1 and 6 are not used in the United States and should not be connected to the telephone system. The connectors on the rear bracket of the D/120JCT-LS linecard accept linecords equipped with standard RJ-14 connectors.

Depending on the type of telephony interface provided for connectivity to the telephone network, you may require linecord adaptors to connect the Call Server platform to the telephone system. If linecord adaptors are required but not included with the linecards, contact your Customer Service Representative.

To cable D/120JCT-LS linecards:

Plug the linecords from the telephone system into the RJ-14 connectors on the D/120JCT-LS ([Figure 7](#)).

Or,

If the provided telephone line interface is not an RJ-14 connector, plug the linecords into the appropriate linecord adapter, then plug the RJ-14 linecord(s) of the adapter into the RJ-14 connector of the D/120JCT-LS.

Dialogic D/240JCT-T1 PCI Express Linecard Technical Specifications

Each Dialogic D/240JCT-T1 PCI Express linecard provides voice channel support for one T1 link or span. Installations that use “robbed-bit” signaling, such as most MiCollab AM applications, the 1.544-megabit-per-second bit stream carried by each T1 span typically contains twenty-four 64-kilobit-per-second voice channels, plus some additional signaling bits. The physical cabling for each T1 span includes two pairs of wires (transmit and receive), one pair for each direction in which the bit stream must travel.

Although T1 spans can be fitted with connectors of various types, the end of the span that connects to the D/240JCT-T1 PCIe linecard must have an RJ-48C connector on it. The [Cabling D/240JCT-T1 PCI Express Linecards to the Telephone System](#) section later in this document provides a pin-out of the RJ-48C connector for your reference.

[Table 8](#) lists the technical specifications for the Dialogic D/240JCT-T1 PCI Express linecards approved for use with MiCollab AM. [Figure 10](#) shows the general layout of the D/240JCT-T1 PCIe linecards.

NOTE Your local telephone company may require some of these specifications. For example, in the United States, some telephone companies require an FCC registration number if the linecard is connected directly to central office (CO) lines. Contact your local telephone company for its requirements.

Table 8. D/240JCT-T1 PCI Express Linecard Technical Specifications

| Feature | Specification |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Number of Ports (Channelization) | 1-24 (channel order); the correlation between channelization and MiCollab AM ports is determined by the linecard identification number |
| Dialing | DTMF |
| FCC registration number | US: EBZUSA-20078-XD-N |
| Framing Type | D4, also known as Superframe (SF) |
| Digital network interface | On-board DSX-1 interface |
| Line Coding RX and TX | AMI |
| Ringer Equivalence | 0.0A |
| Supervisory signal | 2 or 4-wire wink start E&M (the recommended and default signaling) 2 or 4-wire immediate start (requires manual configuration) FXS immediate start (requires manual configuration) |

| | |
|-----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| T-1 signaling | Robbed bit |
| T-1 span support | Full 24 time-slots (partial and fractional T1 are not supported) |
| Timing synchronization | Loop timing (external clock) |
| Other Equipment (Required if you are connecting directly to the PSTN) | A CSU is required. A DSU may also be required depending on the capabilities of the CSU. The CSU must have an RJ-48C connector to connect to the D/240JCT-T1 linecard. |
| Voice coding | PCM |
| Host interface bus | PCIe x1 slot (w/power budgeting) or x4 slot or higher |

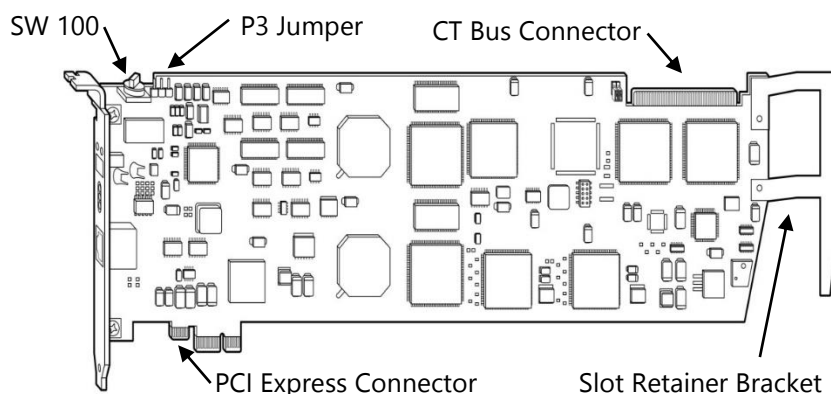
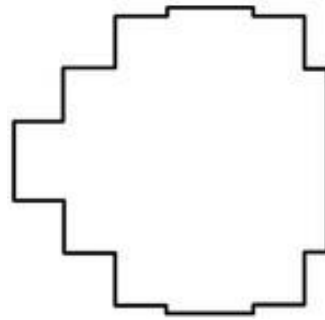


Figure 10. Layout of the D/240JCT-T1 PCI Express Linecard

Cabling D/240JCT-T1 PCI Express Linecards to the Telephone System

MiCollab AM assigns port numbers in ascending order based on the linecard identification number. For example, a D/240JCT-T1 linecard to which you assigned the linecard ID 1 is assigned line numbers 1–24; a D/240JCT-T1 linecard to which you assigned the linecard ID 2 is assigned line numbers 25–48. Refer to the [Assigning the Linecard Identification Number](#) section for information on assigning the linecard ID. Keep this line assignment scheme in mind when connecting each D/240JCT-T1 linecard to the telephone system.

There is one RJ-48C connector on the rear bracket of each D/240JCT-T1 linecard. These are 120-Ohm high impedance connectors. [Figure 11](#) shows the pin-out of these modified connectors.



Pin 8: Shield
Pin 7: Shield
Pin 6: Reserved
Pin 5: TX Tip (T1)
Pin 4: TX Ring (R1)
Pin 3: Reserved
Pin 2: RX Tip (T)
Pin 1: RX Ring (R)

Figure 11. Pin-out of the RJ-48C Connector

Dialogic D/480JCT-T1 PCI Express Linecard Technical Specifications

Each Dialogic D/480JCT-T1 PCI Express linecard provides voice channel support for two T1 links or spans. Installations that use “robbed-bit” signaling, such as most MiCollab AM applications, provide a 1.544-megabit-per-second bit stream carried by each T1 span. Typically, each T1 span contains twenty-four 64-KB (kilobit-per-second) voice channels, plus some additional bits for signaling. The physical cabling for each T1 span includes two pairs of wires (transmit and receive), one pair for each direction in which the bit stream must travel.

Although T1 spans can be fitted with connectors of various types, the end of the span that connects to each port of the D/480 PCIe linecard must have an RJ-48C connector on it. The section [Cabling D/480JCT-T1 PCI Express Linecards to the Telephone System](#), provides a pin-out of the RJ-48C connector for your reference.

NOTE The D/480 cards that Mitel sells all require high-impedance (120-ohm) wiring. By comparison, low-impedance (75-ohm) T1 wiring is attached using two BNC-type coaxial connectors.

Table 9 lists the technical specifications for the Dialogic D/480JCT-T1 PCI Express linecards approved for use with MiCollab AM. Figure 12 shows the general layout of the D/480JCT-T1 PCIe linecards.

NOTE Your local telephone company may require some of these specifications. For example, in the United States, some telephone companies require an FCC registration number if the linecard is connected directly to central office (CO) lines. Contact your local telephone company for its requirements.

Table 9. D/480JCT-T1 PCI Express linecard Technical Specifications

| Feature | Specification |
|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| Number of Ports (Channelization) | 1-48 (channel order); the correlation between channelization and MiCollab AM ports is determined by the linecard identification number |
| Dialing | DTMF |
| FCC registration number | US: EBZUSA-20078-XD-N |
| Framing Type | D3/D4, also known as Superframe (SF) |
| Digital network interface | On-board DSX-1 interface |
| Line Coding RX and TX | AMI, B8ZS |

| | |
|-----------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ringer Equivalence | 0.0A |
| Supervisory signal | 2 or 4-wire wink start E&M (the recommended and default signaling) 2 or 4-wire immediate start (requires manual configuration) FXS immediate start (requires manual configuration) |
| T-1 signaling | Robbed bit |
| T-1 span support | Two full 24 time-slots (partial and fractional T1 are not supported) |
| Timing synchronization | Loop timing (external clock) |
| Other Equipment (Required if you are connecting directly to the PSTN) | A CSU is required. A DSU may also be required depending on the capabilities of the CSU. The CSU must have an RJ-48C connector to connect to the D/480JCT-T1 linecard. |
| Voice coding | PCM |
| Form Factor | PCIe long card 12.3 in w/o edge retainer, 13.3 w/ edge retainer |
| Host interface bus | PCIe x1 slot (w/power budgeting) or x4 slot, or higher |

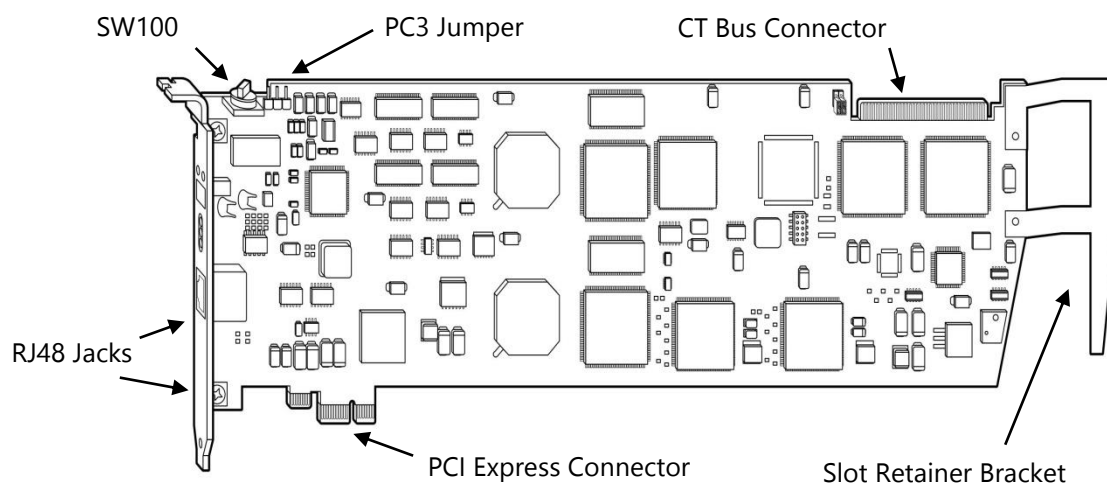


Figure 12. Layout of the D/480JCT-T1 PCIe Linecard

Cabling D/480JCT-T1 PCI Express Linecards to the Telephone System

MiCollab AM assigns port numbers in ascending order based on the linecard identification number.

For example:

A D/480JCT-T1 linecard to which you assigned the linecard ID 1 is assigned line numbers 1–48; a D/480JCT-T1 linecard to which you assigned the linecard ID 2 is assigned line numbers 49–96. Refer to the [Assigning the Linecard Identification Number](#) section for information on assigning the linecard ID.

Keep this line assignment scheme in mind when connecting each D/480JCT-T1 linecard to the telephone system.

There are two RJ-48C connectors on the rear bracket of each D/480JCT-T1 linecard. These are 120-Ohm high impedance connectors. Figure 13 shows the pin-out of these connectors.

NOTE The bottom T1 port or T1 port closest to the PCI Express edge connector is port 1, channels 1–24.

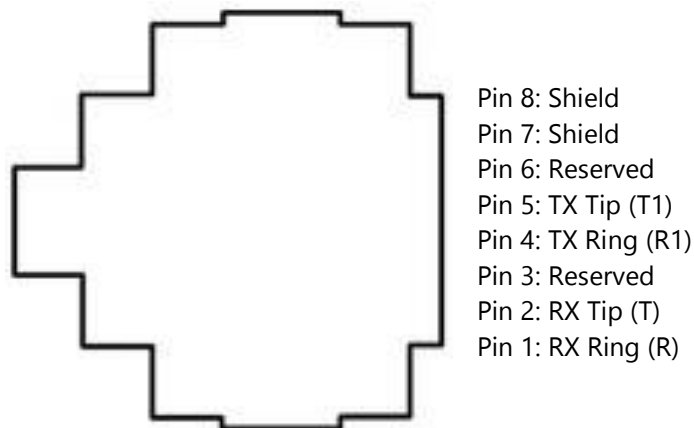


Figure 13. Pin-out of the RJ-48C Connector

Preparing Dialogic PCI Express Linecards for Installation

You must configure some or all of the following components of the Dialogic PCI Express linecard before installing it in the MiCollab AM platform:

- Assign the linecard ID number based on the ports it provides

IMPORTANT D/42JCT-U and D/82JCT-U linecards are assigned board ID's automatically during system startup.

- Configure the linecard's default line state (D/41JCT-LS and D/120JCT-LS linecards only)
- Remove the slot retainer bracket from the linecard (if the platform requires it)

Assigning the Linecard Identification Number

Each Dialogic linecard installed in the MiCollab AM platform must be configured with a unique linecard identification number (referred to by Dialogic as the Board Locator ID). This number, from 1 through F hex (1–15 decimal), is used by Dialogic system software to determine which linecard is sending a signal. If two or more linecards installed in the platform are configured to use the same linecard identification number, the Dialogic system software (device driver) is unable to locate either linecard. If your Call Server has more than one linecard, make note of the linecard identification number of each linecard to clarify the process of connecting the ports to the telephone system.

IMPORTANT Unique linecard identification numbers must be assigned in ascending order to each linecard starting at 1. Do not configure any Dialogic PCI Express linecard to the linecard identification number 0. MiCollab AM does not support the automatic linecard identification scheme for PCI Express linecards (called Geographic Sequencing by Dialogic).

To set the linecard identification number, dial the rotary switch (SW30 on D/41JCT-LS, SW100 on D/120JCT-LS, D/240JCT-T1 and D/480JCT-T1 linecards) to select a unique linecard identification number as shown in the example in Figure 14. (For the location of the rotary switch, refer to the specific linecard figure for the linecard you are installing.)

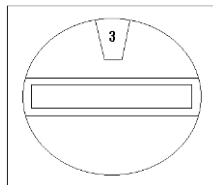


Figure 14. SW30 or SW100 Switch Set to Linecard ID 3

Configuring the Default Line State (D/41 and D/120 only)

D/41JCT-LS and D/120JCT-LS PCIe linecards have a switch to configure the initial hook state. This switch determines how the linecards responds to incoming telephone calls when the Call Server platform power is on, but either MiCollab AM or the Dialogic system software is not running.

- If the switch is in the OFF position, the default line state is onhook; callers get a ring-no-answer (RNA) response. (This is the factory default setting)
- If the switch is in the ON position, the default line state is offhook; callers get a busy signal.

NOTE If the computer platform is powered off, callers get an RNA response.

NOTE Setting the switch to the offhook position may cause some PBXs to take the line out of service or cause an alarm condition in the PBX that requires manual intervention to clear.

To change the default hook-switch line state of the linecard to offhook, flip the line state switch (SW4 on the D/41JCT-LS or SW1 on the D/120JCT-LS) to the ON position as shown in Figure 15.

NOTE The line state switch on some Dialogic cards is not labeled with the word "ON." Setting the switch in the position labeled "1" is setting it to "ON."

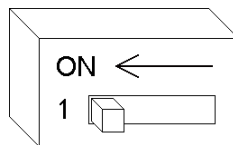


Figure 15. SW1 or SW4 Line State Switch

Removing the Slot Retainer Bracket

In certain platforms it may be necessary to remove the slot retainer bracket from the inside edge of the linecard.

To remove the slot retainer bracket:

- 1 Refer to the specific linecard figure for the location of the slot retainer bracket.
- 2 Remove the slot retainer bracket by removing the two retaining screws.

Configuring the Power Budgeting Jumper

IMPORTANT Before you begin, verify that the specific linecard you are installing is compatible with the PCIe slots in the MiCollab AM server platform. The Dialogic PCI Express linecards are a full-length x1 form factor PCI Express board that requires 25W of power. PCI Express

chassis slots are defined as x1, x4, x8, x16, and refer to the number of lanes on a board the slot can accommodate.

If Power Budgeting is not implemented by your system, the Dialogic PCI Express linecard must be plugged into an x4 or higher slot with the Power Budgeting jumper in position 1-2. In this setting, the board ignores power budgeting values set by the system. This is allowed because an x4 or greater slot must be able to support a minimum of 25W (per the PCI Express Card Electromechanical Specification Revision 1.0a or higher).

If Power Budgeting is implemented by your system, a Dialogic JCT PCI Express linecard can be plugged into an x1 slot but the Power Budgeting jumper on the board must be in pin position 2-3. In this setting, the board adheres to the power budgeting values set by the system. As per the PCI Express Card Electromechanical Specification Revision 1.0a or higher, an x1 add-in board can draw no more than 10W of power in an x1 slot unless the board's required power is successfully negotiated and allocated by the system using the power budgeting feature.

The power budgeting feature of a system chassis is not a compliance requirement of this specification and some system chassis may not support this feature. The Power Budgeting jumper is designed to ensure proper configuration of the PCIe linecard.

NOTE On Dialogic D/120, D/240/ and D/480 PCIe linecards the Power Budgeting jumper is labeled P3. On Dialogic D/42 and D/82 PCIe linecards, the Power Budgeting jumper is labeled P11. The Dialogic D/41 PCIe linecard is not equipped with power budgeting.

WARNING Installing the Dialogic D/480 linecard in an x1 slot with the P3 or P11 in position 1-2 voids the warranty of the linecard.

The Dialogic PCIe full-length form factor linecards have an option that determines how the board responds to the system power budgeting function. The Power Budgeting jumper is a 3-pin block. The jumper on pins 2-3 configures the board to adhere to the power budgeting function and pins 1-2 configures the board to ignore the power budgeting function. The factory default setting is pins 2-3 strapped; power budgeting function enabled. The Power Budgeting jumper is set to the factory default setting as shown in Figure 16.

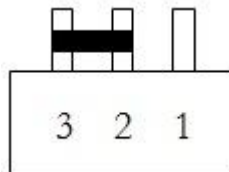


Figure 16. Power Budgeting Jumper

Installing Dialogic PCI Express Linecards in the Platform

The following procedures detail how to install a Dialogic linecard into your platform. For more information, refer to the documentation that came with your platform.

- 1 Verify that the linecard identification number, the CT Bus, and the default line state are configured correctly for each linecard.
- 2 If necessary, configure the Dialogic service to start manually.

Table 10. Dialogic service options

| If Dialogic system software is... | Then... |
|-----------------------------------|-----------------------------|
| Installed on the platform | Continue to Step 3 . |
| Not installed on the platform | Skip to Step 7 . |

- 3 If the MiCollab AM software is running, use the MiCollab AM Configuration utility to shut it down and then clear the **Automatic Startup** checkbox to prevent MiCollab AM from starting automatically when the platform restarts.
- 4 Select **Start > Programs > Dialogic System Release**, and then select **Configuration Manager > DCM**.
- 5 From the menu bar, select **Settings > System/Device autostart** and then select **Detect Only**.
- 6 From the **File** menu, select **Exit**.
- 7 Shut down the operating system.
- 8 Turn off the computer, unplug its power cord, and then remove its cover.
- 9 Select a PCI Express expansion slot.

Table 11. Linecard options

| If the linecard... | Then... |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Replaces an existing linecard | Remove the existing linecard from the chassis and then select an available PCI Express expansion bus slot for the replacement linecard. |
| Adds ports to the MiCollab AM platform | Select an available PCI Express expansion bus slot and then remove its cover plate. |

- 10 Insert the linecard into the PCI Express bus slot. Gently press the linecard down to seat the edge connector into the slot, applying pressure only to the top edge of the board. Rocking the card or applying excess pressure may damage the card or the bus connector.
- 11 Secure the card with the appropriate retaining screw or locking clip.

NOTE If you do not secure the card, it may become unseated when you attach the CT Bus cable later in the installation process.

- 12 Repeat **Steps 9–11** for each linecard you are installing.

Installing the CT Bus Cable

To support MiCollab AM, Mitel sells PCI Express linecards that exchange data with one another through an H.100-compliant resource bus. The H.100 Bus standard specifies a hardware design that supports signals from several earlier resource bus specifications including CT Bus, SC Bus, MVIP, and others.

NOTE The terms CT Bus and H.100 are often encountered together. H.100 refers to the specific variant of the CT Bus specification used in PCI Express linecards.

Each Dialogic PCI Express linecard is equipped with a CT Bus connector to which a CT Bus cable can be connected. Because the MiCollab AM software is designed to work without terminated resource buses, it is not necessary to add a terminator pack of any sort to either end of the CT Bus cable or to change the termination settings on any CT Bus linecard in the system.

If you have more than one linecard installed, you must cable the linecards together with a CT Bus cable.

IMPORTANT Do not terminate the linecard at either end of the CT Bus cable.

To install the CT Bus Cable:

- 1 Plug the first (end) connector on the CT Bus cable to the CT Bus edge connector on the top edge of the first PCI Express card.
- 2 The connectors are designed to fit together one way only. If the connector does not seat fully on the card, turn the cable around and try again. When attached correctly, the colored stripe on the cable faces the rear bracket. (The stripe must be adjacent to pin 1 on the card connector.)
- 3 Plug the last (opposite end) connector on the CT Bus cable to the CT Bus connector on the last PCI Express card installed in the platform.
- 4 Plug a connector of the CT Bus cable to the CT Bus connector on each remaining intermediary PCI Express card installed in the platform.
- 5 Tuck any extra connectors or loose ribbon cable down into the chassis so that it does not snag when you replace the platform cover.
- 6 Replace the cover on the platform and plug in the power cord.

Installing Dialogic Software

Dialogic software is installed automatically with the MiCollab AM Server software. However, you must select the Dialogic System Release component on the Select Hardware Support Components dialog box during setup.

The Dialogic software is installed as a hardware support component of the MiCollab AM Server software found on the Installation Media. The Dialogic software is typically installed at the time of the initial Call Server software installation. However, if it was not previously installed, you must install it by re-installing the MiCollab AM Server software.

If you are upgrading from a previous version of MiCollab AM, you may have to un-install a previous version of Dialogic software before you begin the installation. If the MiCollab AM InstallShield Wizard detects an existing version of Dialogic software during the setup process, the installation is aborted and you are prompted to un-install all Dialogic software first.

For more information on removing previous versions of Dialogic software, refer to MiCollab AM help or *Dialogic and Aculab Administration Guide* for removing and/or installing Dialogic and Aculab Software.

IMPORTANT If you are removing Dialogic software and you are not installing another version of Dialogic software, you must re-install MiCollab AM software after you un-install any previous version of Dialogic software.

Configuring Dialogic PCI Linecards in Dialogic Configuration Manager – DCM

The Dialogic Configuration Manager (DCM) is a utility that allows you to configure the parameters used by the Dialogic system software to control the Dialogic linecards installed in the platform. Each time you start the DCM, it automatically detects any installed linecards. The DCM matches the linecards it detects with the corresponding configuration data.

The DCM has a comprehensive online help system. Consult the *Dialogic Installation and Configuration Knowledge Base* book in the help system for advice about troubleshooting the Dialogic system software.

To configure a Dialogic linecard:

- 1 From the taskbar, select **Start > All Programs > Dialogic System Release**, and then click **Configuration Manager > DCM**.
- 2 If the Computer Name dialog box appears, select **Local**, and then click **Connect** to continue. The **Dialogic Configuration Manager** dialog box displays.
- 3 Double-click the **Bus-0** icon.
- 4 From the **Parameter** list, click **TDM Bus Type (User Defined)** if it exists.

Table 12. TDM Bus Type Parameters

| If the TDM Bus Type (User Defined) parameter... | Then... |
|-------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| Exists | Continue with Step 5 . |
| Does not exist | Verify that the TDM Bus Type (Resolved) parameter is set to H.100. If it is not, contact Mitel Technical Support for assistance. |

- 5 From the Value list, select **H.100**, and then click **OK**.
- 6 Do one of the following:

Table 13. Dialogic voice resource cards installation options

| If the Dialogic voice resource cards installed in the platform... | Then... |
|-------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Appear automatically in the Configured List | Double-click the first card Devices list in the Configured Devices |
| Do not appear automatically in the Configured List | From the System menu, select Auto-detect devices from the Configured Devices List. If the card(s) do not appear, contact Mitel Technical Support for assistance. |

- 7 In the Properties dialog box for the selected linecard, click the **Telephony Bus** tab, and then select **PCM Encoding** in the Parameter list.
- 8 Select the PCM encoding scheme used by your telephone switch:

Table 14. PCM encoding schemes

| If the PCM encoding scheme used by the telephone switch is... | Then... |
|---------------------------------------------------------------|------------------------------------------|
| U-law | Select ULAW in the Value list box |
| A-law | Select ALAW in the Value list box |

- 9 Click the **Country** tab, and then click **Country** in the Parameter list.
- 10 Select your country in the **Value** list box, and then click **OK** to apply the changes you have made.
- 11 Repeat **Steps 3-10** for each Dialogic voice-resource card installed in the platform.
- 12 Click the green **Start** icon on the toolbar to start the Dialogic Service. The Dialogic Service starts.
- 13 Once the service has started the Red Stop icon displays on the toolbar and the System Status on the bottom of the dialog box displays, *Running*.
- 14 From the menu bar, select **Settings > System/Device autostart**, and then click **Start System**.
- 15 From the menu bar, select File, and then click Exit.
- 16 From the taskbar, select **Start > Control Panel**, and then double-click **MiCollab AM Configuration**. The **MiCollab AM Configuration** utility starts.
- 17 Select the **Automatic Startup** check box on the utility's Main tab.
- 18 Click the **Boards** tab, and then click **Auto Detect**.
- 19 Verify that all of the linecards installed in the platform appear in the **Boards** list and are associated with the correct range of port numbers.
- 20 To exit the **MiCollab AM Configuration** utility, click **OK**.
- 21 Restart the Call Server.
- 22 After the restart has completed, start the **MiCollab AM Configuration** and **Line Status** utilities. Verify that the MiCollab AM Service has started and is running normally.

Appendix A—Manually Adding a Linecard to the Configured Devices List

If the DCM fails to detect a linecard in the platform automatically, you can add the linecard manually using the DCM.

To manually add a linecard:

- 1 Select **Start** > **Programs** > **Dialogic System Release**, and then select **Configuration Manager** > **DCM**.
- 2 If the Computer Name dialog box appears, select **Local**, and then click **Connect** to continue.
- 3 If the Dialogic service is running, click the red **Stop** icon on the toolbar.
- 4 From the menu bar, select **System**, and then select **Auto detect devices**.
- 5 Do one of the following:

Table 15. Linecard options

| If the linecard... | Then... |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Is detected | It displays in the Configured Devices list. Go to the Configuring Dialogic PCI Linecards in Dialogic Configuration Manager – DCM section for instructions. |
| Is not detected | Proceed to Step 6 . |

- 6 From the menu bar, select **Device**, and then click **Add Device**. The **Add Hardware Wizard** dialog box displays.
- 7 Select the board you installed from the Family column, the type from the Model column, and then click **Next**. The **Device Name** dialog box displays.
- 8 Give the Device a unique name.
- 9 Follow the **DCM Add Hardware** Wizard's on-screen instructions to add the board. If necessary, refer to the [Configuring Dialogic PCI Linecards in Dialogic Configuration Manager – DCM](#) section for instructions.

Addendum B—Configuring the D/42JCT or D/82JCT for Your Station Set Emulation

By default, the Dialogic Configuration Manager sets the parameter PBXSwitch to Nortel_Norstar. You must change this parameter to the appropriate PBX type you are integrating with MiCollab AM.

To program the Dialogic Configuration Manager:

- 1 On the Start menu at the MiCollab AM platform, select **Programs > Dialogic System Release > Configuration Manager-DCM**.
- 2 Stop the Dialogic service if it is running.
- 3 Double-click the first installed D/42 or D/82 linecard to open the **Properties** sheet.
- 4 On the **Miscellaneous** tab, select the *PBXSwitch* parameter.
- 5 In the **Values** box, select the appropriate PBX type for your station set emulation integration.

NOTE For more information, refer to the *Integration Technical Note* that is specific to the Station Set Emulation integration you are installing.

- 6 On the **Telephony Bus** tab, verify that the correct PCM encoding scheme is selected. The default value is automatic or U-Law; you must change this value to A-Law outside of the U.S. and Japan.
- 7 Click **OK** to close the **Properties** sheet.
- 8 Repeat **Steps 3** through **7** for each installed D/42 or D/82 linecard.
- 9 Restart the Dialogic service and close **Dialogic Configuration Manager**.