Dialogic®

Dialogic® DNI2410TEPEHMPQ Board

Installation Guide

1. Product Description

The Dialogic® DNI2410TEPEHMPQ board ("DNI2410TEPEHMPQ" or "board") is a high-density, high-performance, network interface board with eight T1/E1 digital network interfaces in a full-length PCI Express form factor.

The DNI2410TEPEHMPQ includes the following components, shown in the Physical Layout illustration:

RJ-48C jacks: Four connectors, each of which connects to two T1 or E1 trunks via a splitter cable. Refer to the Physical Layout illustration for the trunks supported by each connector. The splitter cable set (four splitter cables) is provided with the board.

General Network Interface Alarm LED: When lit (yellow), indicates that an alarm condition is present on one or more of the trunks. When unlit, alarm conditions are cleared.

Reset LED: When lit (red), indicates that the board is in the reset state. When unlit, the board is no longer in the reset state.

Power LED: When lit (green), indicates that board power is good. When unlit, either power has not been applied to the board, or the board has detected that one or more of the on-board-generated voltages are not correct.

SW1: Rotary switch used when setting board ID.

Alarm/status LEDs: A set of four LEDs for each trunk. Refer to the Physical Layout illustration for LED arrangement.

During power-up, the LEDs indicate Power-On Self Test (POST) status. After the board is started, the green, yellow, and red LEDs indicate normal operation or Carrier Failure Alarms (CFAs) for each trunk, as shown in the following table. The Loopback LED indicates when the respective trunk is in loopback mode.

Green	Yellow	Red	Indicated Condition
ON	OFF	OFF	Normal operation
OFF	OFF	ON	Loss of Signal (LOS)
ON	OFF	ON	Red Alarm
ON	ON	OFF	Yellow Alarm/Remote Alarm Indicator (RAI)
ON	ON	ON	Alarm Indicator Signal (AIS)

Physical Layout

Key:
G=Green
L=Loopback (Red)
R=Red
Y=Yellow
1-8=Trunk No.

Power Budgeting Jumper P10: 3-pin jumper to set how the board responds to the system power budgeting function.
- P10 jumper in pins 2-3: Board adheres to power budgeting values set by system.
- P10 jumper in pins 1-2: Board ignores power budgeting values set by system.

Factory default is P10 jumper in pins 2-3.

**CT Bus Connector:** H.100 computer telephony bus connector.

P5: CT Bus termination jumper block. Only the boards in the end positions of a CT Bus cable should be terminated. Factory default is unterminated (clip installed over one pin only).

PCI Express connector: Host bus connector. Compatible with x1 or larger PCI Express Link connectors.

Additional Information

Additional information about the DNI2410TEPEHMPQ is available from a number of sources, such as via its product data sheet, which is accessible at http://www.dialogic.com/products/list.asp. The product data sheet provides a functional description of the DNI2410TEPEHMPQ, as well as information about its applications, configurations, features, and technical specifications. Please note that Dialogic may make changes to specifications, product descriptions, and plans at any time, without notice.
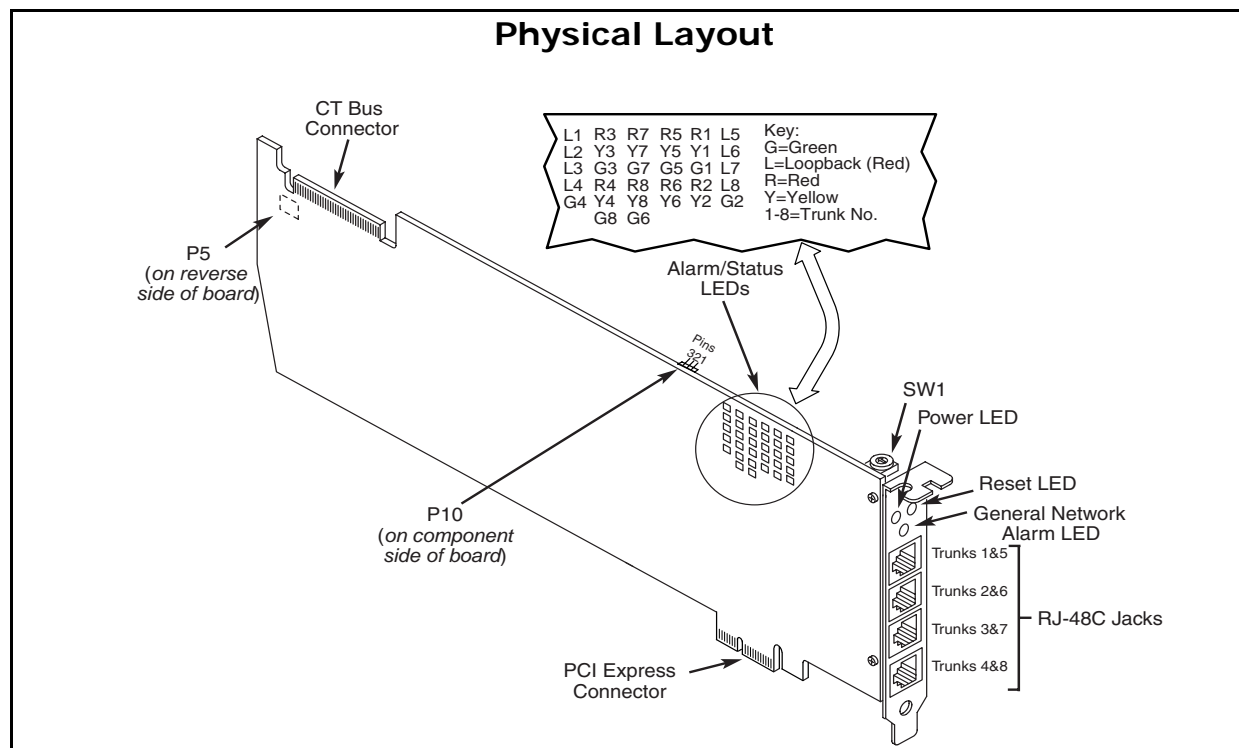
Refer to the Release Guide and the online Release Update for your Dialogic software release to verify that the DNI2410TEPEHMPQ is supported in the release, and for information on any new features or issues that may relate to it.

The Regulatory Notices document that is packed with each DNI2410TEPEHMPQ contains safety warnings and national requirements for proper operation of telecommunications equipment. Please read the document carefully before any handling, installation, connection or other usage or implementation of the board.

2. Before You Begin
Protecting the Board from Damage

CAUTION: All computer boards are sensitive to electrostatic discharge. Handle all static-sensitive boards and components at a static-safe work area, and observe anti-static precautions at all times.

If you are not familiar with ESD safety precautions, visit http://www.dialogic.com/support/hwinstall to learn more.

Unpacking the Board

Unpack the board according to the following steps:
1. Prepare a static-safeguarded work area.
2. Carefully remove the board from the shipping carton and anti-static packaging. Handle the board by the edges and avoid touching the board's components.
3. Lay the board on the static-dissipative work surface.

Note: Place board in static-shielding bag when carrying board from station to station.

CAUTION: Do not remove the board from the anti-static packaging until you are ready to install it. Observe proper anti-static precautions at all times.

3. Configuring the Board

The DNI2410TEPEHMPQ uses Plug and Play technology to simplify installation. No user configuration is required for IRQ or memory address.

The DNI2410TEPEHMPQ has the following manually configurable options:

- Board ID
- CT Bus termination
- Power budgeting (see Choosing a Slot section below)

Setting the Board ID

When the system is started, each Dialogic® board is assigned a board instance ID number that programs can use to identify individual boards in a multi-board system. The setting of SW1 controls the generation of the instance numbers.

Windows* Systems: In a Windows system, leave SW1 set to the "0" position (the factory default setting) on all Dialogic boards. This setting causes the system software to assign instance numbers geographically, based on the bus and slot numbers. Note that there is no way to know what the instance numbers will be until the system is started and configured, and the instance number for any given board is likely to change when there is any change in the number or arrangement of boards in the system.

After the hardware and the Dialogic® software are installed, refer to the configuration manager (DCM) to retrieve the assigned board instance ID number(s). DCM is a utility that enables you to add new boards to your system, to start and stop system service, and to work with board configuration data. This utility can be accessed from the Start menu in the Dialogic software program folder. For more information about board identification, see the DCM online help.

Linux Systems: In a Linux system, you must explicitly specify the board ID numbers by setting SW1 on each board to a different position (0-9 or A-F). After the hardware and the Dialogic software are installed, refer to the proper configuration files to retrieve the assigned board instance ID number(s). For more information about Linux configuration files, see the Dialogic software release documentation.

Setting CT Bus Termination

If you are connecting multiple boards via a CT Bus cable, the bus signal should be terminated on the boards that are located at the ends of the CT Bus cable. All other boards should be left in their factory default configuration with the CT Bus termination pins not linked.

To terminate the CT Bus, install a link clip over the pair of P5 pins indicated in the following figure.
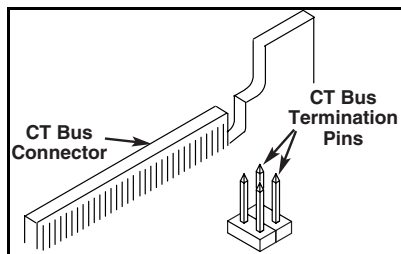
4. Choosing a Slot

The DNI2410TEPEHMPQ is a full length x1 form factor PCI Express board that requires 18W of power. The following explanation and guidelines are provided for configuration of the product.

Power Budgeting is a new feature, introduced in the PCI Express Specification, that provides a mechanism to enable a system to negotiate power consumption requirements for add-in devices.

Per PCI Express Card Electromechanical Specification Revision 1.0a or higher, a x1 add-in card can draw no more than 10W in a x1 slot unless the board's required power is successfully negotiated and allocated by the system (power budgeting). However, implementation of power budgeting by a vendor's system is not a compliance requirement per the PCI Express Card Electromechanical Specification Revision 1.0a or higher. Therefore, some chassis may not support this feature. Power Budgeting jumper P10 is designed to ensure proper configuration of the product.

The DNI2410TEPEHMPQ must be installed in a slot that can be allocated 18W of power.

If Power Budgeting is **not** implemented by a vendor's system, the DNI2410TEPEHMPQ **must** be plugged into a x4 or higher slot with the P10 jumper in position 1-2 (power budgeting ignored). This is allowed per PCI Express Card Electromechanical Specification Revision 1.0a or higher because a x4 or greater slot must be able to support a minimum of 25W of power.

If Power Budgeting is implemented by a vendor's system, the DNI2410TEPEHMPQ **can** be plugged into a x1 slot but the P10 jumper must be in position pins 2-3 (power budgeting adhered to).

WARNING! Installing the DNI2410TEPEHMPQ in a x1 slot with the P10 jumper in position 1-2 will void the warranty of the DNI2410TEPEHMPQ.

If the DNI2410TEPEHMPQ will be connected to one or more other boards via a CT Bus cable, you should install the boards to minimize unused connectors on the CT Bus cable (in addition to ensuring that the power requirements are met):
- Install boards in adjacent slots whenever possible.
- If the DNI2410TEPEHMPQ will be connected to one or more PCI boards, use the PCI Express slot(s) located closest to the PCI slots.
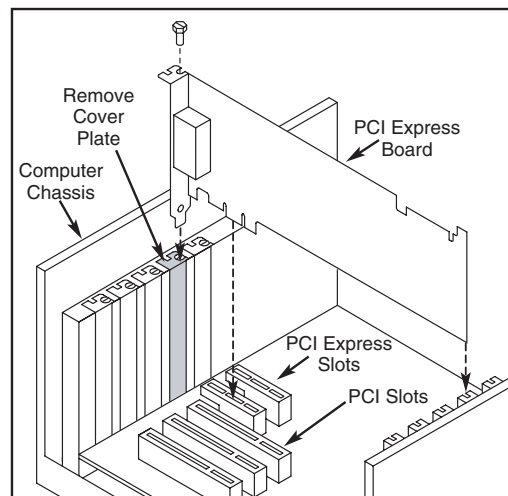
5. Installing the Board

WARNING! Unplug the equipment before performing the procedures described in this section. Failure to disconnect the power before you open the chassis can result in personal injury. Ensure that the system is disconnected from its power source and from all telecommunications links, networks, or modem lines whenever the chassis cover is removed. Do not operate the system with the cover removed.

CAUTION: To avoid possible damage to the board, remove power from the computer before beginning installation. Observe proper anti-static precautions at all times while handling and installing the board.

To install the DNI2410TEPEHMPQ, perform the following steps:
1. Turn off all power to the system and disconnect the system's power cords.
2. Remove the computer's cover.
3. Choose an empty PCI Express expansion slot and remove that slot's retaining screw and access cover plate.
4. Insert the board's edge connector into the bus slot, and apply firm pressure to the top edge of the board until the board is fully seated in the edge connector.
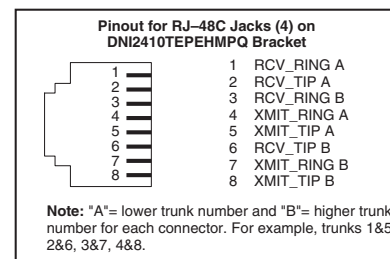5. Reinstall the retaining screw.

6. Repeat Step 3 through Step 5 for any additional boards you are installing.
7. If applicable, connect the boards together with a CT Bus cable of the appropriate size (not included). If possible, use a cable assembly that matches the total number of boards in your system. If the cable has more than one unused connector, install the cable so that all the unused connectors are at one end of the cable.
8. Replace the computer's cover.
9. Reconnect the computer's power cord.

Note: Your CT Bus cable may have a different number of connectors (drops).
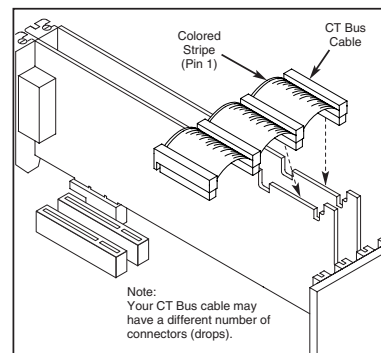
6. Connecting to External Equipment

Each RJ-48C jack on the DNI2410TEPEHMPQ supports two T1 or E1 digital network interfaces. A splitter cable set consisting of four splitter cables is provided with the board. Connect a splitter cable to each RJ-48C jack on the rear bracket of the DNI2410TEPEHMPQ. The following figure illustrates the pinouts of the four RJ-48C jacks on the DNI2410TEPEHMPQ.

Pinout for RJ–48C Jacks (4) on DNI2410TEPEHMPQ Bracket

1	RCV_RING A
2	RCV_TIP A
3	RCV_RING B
4	XMIT_RING A
5	XMIT_TIP A
6	RCV_TIP B
7	XMIT_RING B
8	XMIT_TIP B

Note: "A"= lower trunk number and "B"= higher trunk number for each connector. For example, trunks 1&5, 2&6, 3&7, 4&8.

For connections to CSUs or other network termination equipment, the splitter cable breaks out the two T1/E1 trunk interfaces on a single RJ-48C connector to the standard wire pairs of two separate RJ-48C modular connectors. On the Y-adapter end of the splitter cable, the connector labeled "A" is for the lower trunk number and the connector labeled "B" is for the higher trunk number supported by each cable, for example, trunks 1&5, 2&6, 3&7, and 4&8. Each connector has the following pinouts:

1	RCV_RING	4	XMIT_RING	7	Not used
2	RCV_TIP	5	XMIT_TIP	8	Not used
3	Not used	6	Not used		

7. After Installing the Board

The DNI2410TEPEHMPQ requires the use of a Dialogic software release that specifically supports it.

If this is the first Dialogic board you have installed in your system, you will need to install an appropriate version of the Dialogic software and to configure the software for the specific board(s) you are using. For instructions, refer to the installation and configuration documentation that accompanies the release.

If you are installing the DNI2410TEPEHMPQ in a system that already has Dialogic software installed, you should verify that your installed software version supports the board. If it does not support the board, you will need to obtain and install a Service Update that

does support the DNI2410TEPEHMPQ before configuring the system for the newly installed board(s). Please refer to the Release Update document for your Dialogic software version for up-to-date information about support for the DNI2410TEPEHMPQ and any known issues relating to its use.

8. Removing the Board

Removal of the DNI2410TEPEHMPQ is essentially the reverse of the installation procedure, as summarized in Step 1 through Step 7 below:
1. Observe anti-static precautions.
2. Disconnect the telephony cables and splitter cables.
3. Remove the computer's power cord.
4. Remove the computer's cover.
5. Disconnect the CT Bus cable (if applicable).
6. Remove and set aside the board's retaining screw.
7. Remove the board and place it in static-protective packaging.

9. Contacting Technical Support

Dialogic provides technical support for its products through a network of value added distributors who are trained to answer technical questions on installing and configuring Dialogic products. If you are unsure how to contact your support channel, please call Dialogic in the United States at 973-967-6600 (9am - 5pm EST) and we will assist in obtaining the appropriate support channel. Outside the United States please refer to http://www.dialogic.com/support/ contact to obtain local contact information.

Dialogic also provides direct support via Dialogic® Pro™ Services agreements. For more details of direct support from Dialogic please refer to http://www.dialogic.com/support/DialogicPro.

10. Returning a Product

To return a board for warranty repair or for any other returns, please refer to the following: http://www.dialogic.com/support/hwfaults