DataFire BRI PCI Driver

for

Windows NT

Installation and Configuration Guide

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Introduction

This manual provides information related to the installation and configuration of the **DataFire BRI PCI 1 S/T** adapter and the **DataFire BRI PCI 1 U** adapter. The term "DataFire BRI PCI" used throughout this manual refers to either adapter model.

Product Description

The DataFire BRI PCI adapter and driver give a Microsoft Windows NT system the power to establish connections to remote networks over ISDN lines.

When used in Windows NT system environments, the DataFire BRI PCI adapter uses the concepts of ISDN networks to facilitate two-way communication via the Basic Rate Interface (BRI). For BRI service, the service provider divides the existing telephone wiring into three separate logical channels; two B channels that each handle data at speeds up to 64kbps, plus a 16kbps channel to handle signaling and communications overhead.

System Requirements

Successful operation of the DataFire BRI PCI driver requires the following:

- The Windows NT system must have available a free PCI expansion slot and the necessary hardware resources for each adapter to be installed.
- The Windows NT ISDN configuration must be done from the same system on the network that has the adapter installed.
- The system with DataFire BRI PCI adapter(s) must be running Windows NT 3.51 (with Service Pack 5) or later.
- The DataFire BRI PCI driver currently supports remote access services provided by Microsoft Windows NT.

DataFire BRI PCI adapters work with all currently deployed switches in the U.S., including the following:

- AT&T 5ESS Switches (now Lucent)
- Northern Telecom DMS-100 Switches (now Nortel)
- Any National ISDN-1 (NI-1) Switch.

In Europe, the DataFire BRI PCI adapters are compatible with:

- Euro ISDN (ETSI)
- German National 1TR6
- French National VN4

Installation and Configuration

In This Chapter

This chapter describes how to install and configure the DataFire BRI PCI adapter software. It discusses the following topics:

Preparing for Installation

Contact Your Service Provider

Certain ISDN information is required for installation of the DataFire BRI PCI adapter. Obtain the following information from your ISDN service provider:

- The type of switch to which your adapter will be connected
- The telephone number for each Logical Terminal (if required by your service provider)
- The SPID (Service Profile Identifier) for each Logical Terminal (if required by your service provider)

Refer to Digi publications 91000609, 91000610, or 91000619, DataFire BRI PCI Adapter Installation Card for additional information on ordering ISDN lines.

Install the Adapter

The hardware installation process for your DataFire BRI PCI adapter is described in a separate document. You should refer to it for detailed instructions regarding installation and setup. Refer to Digi publications 91000609, 91000610, or 91000619 DataFire BRI PCI Adapter Installation Card for information on adapter installation.

Installing the Windows NT Driver

This procedure assumes that you have installed the adapter(s) in the computer per the recommended procedures.

The following procedure pertains to both versions 3.51 and 4.0 of Windows NT and each step contains the necessary notation.

1. At the Windows NT system, insert disk 1 for the appropriate platform (x86, Alpha, or PowerPC) of the DataFire BRI PCI adapter Device Driver software into a 3.5-inch floppy drive.
2. **NT 3.51** - Click the *Control Panel* icon in the *Program Manager* to open the Control Panel window.

NT 4.0 - Select *Start/Settings/Control Panel* to open the Control Panel window.

3. Within the Control Panel window, double-click the Network icon:

   NT 3.51 - and the *Network Settings* dialog box appears.

   NT 4.0 - and the *Network* dialog box appears. Make sure the *Adapters* tab is currently selected.

4. **NT 3.51** - Select Add Adapter . . . and the *Add Network Adapter* dialog box appears.

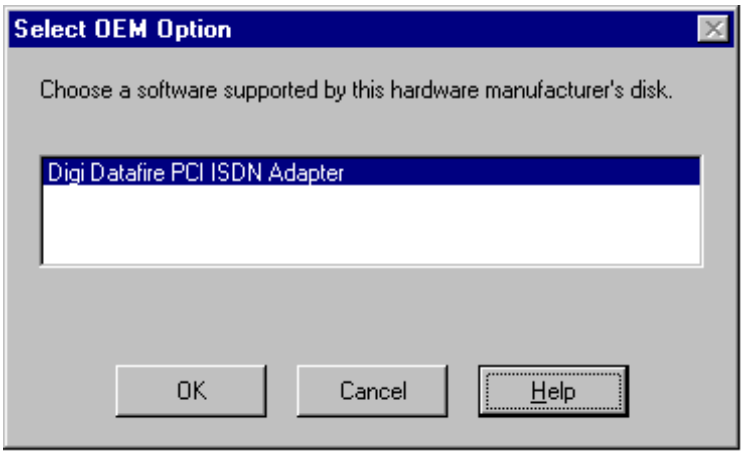
   NT 4.0 - Select Add. . . and the *Select Network Adapter* dialog box appears.

5. **NT 3.51** - From the list of adapters, choose <Other> Requires disk from manufacturer, select Continue.

   NT 4.0 - Select Have Disk.

6. Enter A:\ in the dialog box as shown below (where A: is your floppy drive designation) and select Continue or OK; the *Select OEM Option* dialog box appears as shown in Figure 1.

Figure 1 The Select OEM Option Dialog Box



7. Select “DataFire PCI ISDN Adapter” in the list of adapters and click OK.

   At this point the system copies the driver files to your computer’s hard drive and when finished displays the *DataFire PCI Adapter Setup* dialog box which contains a list of telephone switch types.

8. From the list of switch types, select the type of switch (supplied by your service provider) that corresponds to your ISDN line and click Next.

9. In the dialog box, enter the telephone number for Logical Terminal #1. If your ISDN line accommodates two telephone numbers, enter the second telephone number for Logical Terminal #2.

   If your ISDN telephone switch is a North American type, the SPID (Service Profile Identifier) entry for each Logical Terminal is completed as you enter the telephone number. Verify that the SPID for each Logical Terminal is correct by checking it against that supplied by your service provider. Correct the SPID entries if necessary.

10. Click Finish to complete the procedure and the following message appears: “*DataFire PCI BRI setup is complete. Remote Access Services (RAS) setup will now be invoked. Please configure one or more ISDN ports in RAS setup to enable you to use RAS of ISDN*.”

    Click OK to access the *Remote Access Setup* dialog box displayed by Windows NT. You can click Help for instructions on the use of this dialog box.

    Click Add to display the *Add RAS Device* dialog box and add “DigiCBri” devices to the system. You can click Help for instructions on the use of this dialog box.

11. After you have completed Remote Access Setup, as outlined in step 10, and have restarted your computer, you are ready to use your DataFire BRI PCI adapter with all of the features of Microsoft's Remote Access Services.

Note: If you have difficulty accessing the ISDN line, refer to the “Diagnostics Information” later in this manual to check the status of the ISDN line.

Changing the Adapter Configuration

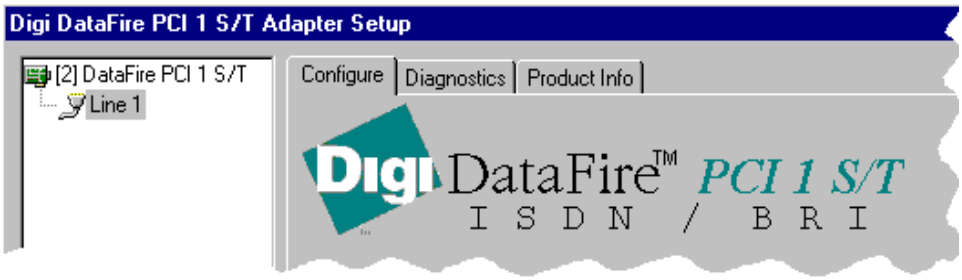
If it becomes necessary to re-configure you adapter due to a change in the ISDN telephone number(s) or switch type, proceed as follows to access the *DataFire PCI Adapter Configure* tab shown in Figure 2:

1. If not already displayed on the monitor, access the Network or Network Settings dialog box as described in steps 2 and 3 of the "Installing the Windows NT Driver" procedure on page 4.
2. **NT 3.51** - Highlight the DataFire BRI PCI adapter in *Installed Adapter Cards* list box.

   NT 4.0 - Highlight the DataFire BRI PCI adapter in *Network Adapter* list box.
3. **NT 3.51** - Select Configure . . . and the monitor displays the *DataFire PCI Adapter Configure* tab.

   NT 4.0 - Select Properties . . . and the monitor displays the *DataFire PCI Adapter Configure* tab.

Figure 2 The DataFire PCI BRI Configure Tab



Selecting the Switch Type

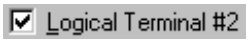
Click the  button to open the drop down list box for switch types offered by ISDN service providers. Select the type of switch from the list that corresponds to the type specified by your service provider. In the following example, the National ISDN-1 type is selected.

Entering the Telephone Number(s)

North American Version

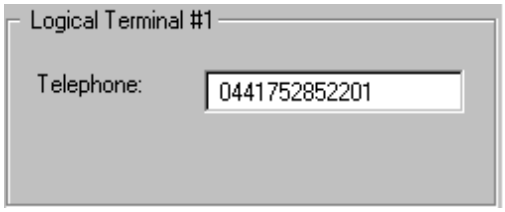
Enter the telephone number of the ISDN line, including area code, for Logical Terminal #1 of the ISDN line.

If two telephone numbers are to be used for the ISDN line, select Logical Terminal #2 as shown below and enter the second telephone number for the ISDN line.

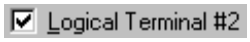


European Version

Enter the telephone number of the ISDN line, including any regional or city codes, for Logical Terminal #1 of the ISDN line.

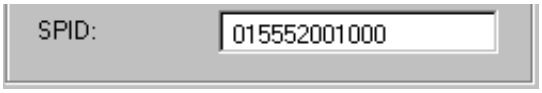


If two telephone numbers are to be used for the ISDN line, select Logical Terminal #2 as shown below and enter the second telephone number for the ISDN line.



Verifying the SPID (North America only)

The Service Profile Identifier (SPID) is required for some ISDN switch types and when necessary, is supplied by your service provider. The SPID entered in the *DataFire PCI Adapter Configure* tab during setup is created automatically from the associated telephone number and is usually the telephone number with several digits appended.



Verify that the SPID entered in the *DataFire PCI Adapter Configure* tab is the same as that supplied by your service provider. If the two SPIDs differ, enter the SPID supplied by your service provider.

If two telephone numbers are to be used for the ISDN line, verify the SPID for Logical Terminal #2 and make any necessary corrections.

Diagnostic Information

Checking ISDN Line Status

A “Line Status” indicator is provided in the left portion of the Diagnostics tab and also in the lower portion of the Configure tab. This indicator can show any of the following four states as a means of showing current ISDN line condition:

Go! The protocol layer of the operating software is functioning and communications are normal.

Yield A problem possibly exists with the adapter configuration.

Stop The adapter is encountering a communication problem with the ISDN line.

? Communication cannot be established with the adapter, or driver, so line status information is not available.

Checking Adapter Diagnostics Information

The DataFire BRI PCI adapter Diagnostics tab provides several pieces of diagnostic information as outlined in the following table. Click the Update button, or press Alt+U, to refresh the information displayed on the tab.

Adapter function	Diagnostic information provided
Line, Status	**Layer 1 inactive**: The adapter is encountering a communication problem with the ISDN line. **Layer 1 active**: The adapter physical interface is communicating normally with the ISDN line. **Layer 2 active for all configured links**: The data interface layer is loaded and running normally. **Layer 3 active for all configured links**: The protocol interface layer is loaded and running normally. **Status unknown**: Line status information is not available.
Line, Activation State	**Inactive -** Adapter is powered down and not sending or receiving any signals. **Sensing**: Adapter is powered on and waiting for an input signal from the network. **Deactivated**: Adapter is sending and receiving INFO 0 (idle). **Awaiting Signal**: Adapter is attempting activation and waiting for a signal from the network. **Identifying Input:** Adapter is attempting to identify the received signal from the network. **Synchronized:** Adapter is now synchronized with the network. **Activated:** Adapter is now activated and ready to send and receive D-channel data. **Lost Framing:** Adapter has lost framing and is waiting for a signal from the network to re-synchronize.

Adapter function	Diagnostic information provided
Logical Terminal x, Layer 2 State	**TEI unassigned**: A TEI (Terminal Endpoint Identifier) is not yet assigned and is required by layer 2 interface. **Assign awaiting TEI**: Unacknowledged data transfer has been requested, thus a TEI has been requested from the network; waiting for TEI assignment from network. **Establish awaiting TEI**: A data link establishment has been requested, thus a TEI has been requested from the network; waiting for TEI assignment from network. **TEI assigned**: A TEI has been assigned by the network, unacknowledged data transfer is now possible. **Awaiting establishment**: A data link establishment has been requested; waiting confirmation from network. **Awaiting release**: Request to release the link establishment has been sent; waiting confirmation from network. **Multiple frame established**: A data link has been established, acknowledged data transfer is now possible. **Timer recovery**: A Layer 2 timer expired; recovery conditions implemented. **State unknown**: The current state can not be determined.
Logical Terminal x, Layer 3 State	**Layer 3 inactive**: Line has not been enabled. **Layer 3 initialization pending**: SPID initialization has been sent; waiting confirmation from network. **Layer 3 initialization request retrying**: SPID initialization timed out (no network response); retrying SPID initialization. **Layer 3 active**: Layer 3 has been initialized and is ready to place or receive calls. **Layer 3 not initialized**: Network rejected the SPID initialization, either wrong switch type or wrong SPID. **State unknown**: The current state can not be determined.

Note: You can click the Windows NT diagnostics button in the DataFire BRI PCI Adapter Setup tab at any time to obtain information regarding the operating system and its current status.

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