Trumpcard Ethernet LAN

User's Guide and Reference

Copyright

Information in this document is subject to change without notice.

Copyright 1995-1997 by Ositech Communications Inc., Guelph, Ontario, Canada.

Ositech Communications Inc. shall not be liable for technical or editorial errors or omissions contained herein; nor for incidental or consequential damages resulting from the furnishing, performance, or use of this material.

Trumpcard is a trademark of Ositech Communications Inc.

P/N: 614006-001 Revision 3.0

How To Contact Us

At Ositech Communications, we make every effort to provide our customers with products that fit their needs and work well. If you wish to communicate with technical support, sales, or any other department at Ositech, please contact us in one or more of the following ways:

Ositech Communications Inc.
679 Southgate Drive
Guelph, Ontario, Canada
N1G 4S2

Toll Free Telephone: 1-888-OSITECH (1-888-674-8324)
Local Telephone: (519) 836-8063
Facsimile: (519) 836-6156

24 HR Bulletin Board Service
(519) 836-1196
[8-N-1, up to 33.6 KBPS]

Internet: World Wide Web   http://www.ositech.com

FTP   ftp.ositech.com

E-Mail   support@ositech.com
sales@ositech.com

Preface

This guide provides Network software installation instructions for the Ositech Trumpcard Ethernet LAN PC Card.

The Trumpcard Ethernet LAN PC Card is a PCMCIA Type II PC Card that can connect to 10BaseT (unshielded twisted pair) or 10Base2 (thin coax) Ethernet Networks. The Ethernet LAN is available separately or combined with other functions. This guide only describes the Ethernet LAN function of a single or multi-function Trumpcard; if your Trumpcard is multi-function, refer to the *Installation Guide* accompanying the PC Card for more details.

'Trumpcard', 'Trumpcard LAN', 'Trumpcard Ethernet LAN' and 'Trumpcard Ethernet LAN PC Card' will be used interchangeably throughout this manual. All refer to the Ositech Trumpcard Ethernet LAN PC Card.

'PCMCIA Card' and 'PC Card' will be used interchangeably throughout this manual. As above, both terms refer to the Ositech Trumpcard Ethernet LAN PC Card.

FCC Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception (which can be determined by turning the equipment off and on), the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio or television technician for help.

Modifications

The FCC requires the user to be notified that any changes or modifications made to this device, that are not expressly approved by Ositech Communications Inc., may void the user's authority to operate this equipment.

Operating Conditions

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

Canadian Electromagnetic Compatibility Advisory

This Class B digital apparatus meets all requirements of the Canadian Interference Causing Equipment Regulations.

Conseil sur la compatibilité des Electromagnétiques, pour le Canada

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Contents

Section Four
Appendices 4-1

Section One

Introduction

Congratulations on your choice of an Ositech Trumpcard Ethernet LAN PC Card! We believe you will find it a superior quality product that will meet or exceed your Networking needs.

The Trumpcard Ethernet LAN PC Card is a convenient, dual-media, credit-card sized adapter that provides an interface between a PCMCIA capable computer and an Ethernet Network.

Direct connection to a 10BaseT Network is possible via a 10BaseT PCMCIA cable only. For 10Base2 connections, a Media Access Module is required. Two styles of connectors are provided on the Media Access Module, enabling connection to the Network using RJ-45 to connect to 10BaseT, or BNC to connect to 10Base2.

Note: *This manual is intended as a supplement to the manual(s) supplied with your Network system software. Use that document as the primary reference source for information about your Network.*

Software installation instructions are given in Section Two for connecting to:

Banyan VINES

DEC PATHWORKS

FTP Software LanWatch

IBM LAN Server

IBM LAN Support Program

Microsoft LAN Manager

Microsoft Windows for Workgroups

Microsoft Windows NT

Microsoft Workgroup connection for DOS

NDIS (Generic)

Novell Netware for DOS

Novell Netware for OS/2

Novell Unixware

SCO Unix

Section Two

Hardware Installation

Unpack the Trumpcard Ethernet LAN hardware, and follow the steps listed below to install it on your computer. Instructions are included for both 10BaseT twisted-pair and 10Base2 thin coax Ethernet Network operations.

Preparing for Installation

To install the Trumpcard, you require the accompanying diskettes and the following items:

- A computer equipped with a PCMCIA Release 2.0, Type II PC Card slot.

- PCMCIA Card and Socket Services Version 2.x or higher, installed. This is optional since the Trumpcard can be operated without Card and Socket Services.

- A Network operating system that is supported by the Trumpcard Network drivers.

- For 10Base2 (thin coax) Networks, a coaxial T-connector and a terminator if at the end of the coaxial segment.

- For 10BaseT (twisted pair) Networks, a twisted pair Network cable terminated with an RJ-45 connector when using the Media Access Module for 10BaseT connections.

Installing the Trumpcard Ethernet LAN

The Trumpcard Ethernet LAN can be inserted into a computer whether the power is ON or OFF.

Follow these steps:

- Orient the Trumpcard so that the 68-pin connector is next to the PCMCIA slot of the computer.

- Insert the Trumpcard into the slot until it is firmly seated.

Note: *These are general installation instructions that apply to most computers. Please refer to the manual accompanying your computer for any additional instructions on installing PC Card adapters.*

Note: *The Trumpcard is keyed to go in one way only. If you feel resistance before it is fully inserted, remove it, turn it over, and re-insert it.*
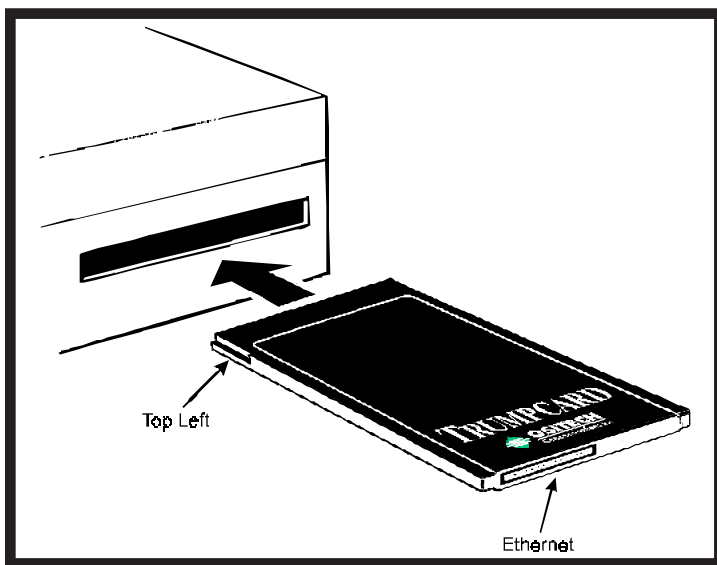
Installing the Trumpcard

Connecting to 10BaseT Twisted Pair Networks

The Trumpcard Ethernet LAN can be connected to a 10BaseT Network in one of two ways: directly connected through a cable attached to the Trumpcard if you have the 10BaseT version, or via the Media Access Module if you need to connect with 10Base2 cabling.

Connecting directly to the Trumpcard, the cable supplied has a male RJ-45 connector at one end that can be attached to an input port of a 10BaseT compatible concentrator; the external Media Access Module is **not** required. All the necessary interface is provided within the Trumpcard.

To direct connect the Trumpcard to a 10BaseT Network connection follow these steps:

- Locate the twisted pair cable that has a male RJ-45 connector at one end and a PCMCIA Ethernet Adapter connector at the other.

- For a multi-function Trumpcard, the Ethernet connection is identified on the back of the PC Card. Insert the PCMCIA Ethernet Adapter connector into the one marked Ethernet.

- Connect the male RJ-45 connector into an input port of a 10BaseT compatible concentrator.

Direct 10BaseT Ethernet Connection

The second method of connecting to a 10BaseT Network is via the Media Access Module. A female RJ-45 connector is provided on the Media Access Module for 10BaseT Network connections.

To connect the Trumpcard to a 10BaseT Network connection using the Media Access Module, follow these steps:

- For a multi-function Trumpcard, the Ethernet connection is identified on the back of the PC Card. Insert the PCMCIA Ethernet Adapter connector on the Media Access Module into the one marked Ethernet.

- Plug the male RJ-45 connector from the Network access cable into the female RJ-45 connector on the Media Access Module.

Note: *The Trumpcard is keyed to go in one way only. If you feel resistance before it is fully inserted, remove it, turn it over, and re-insert it.*
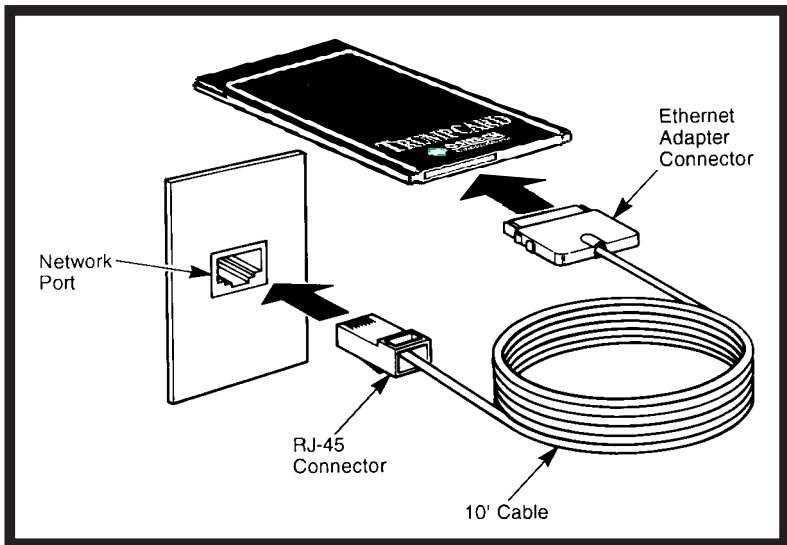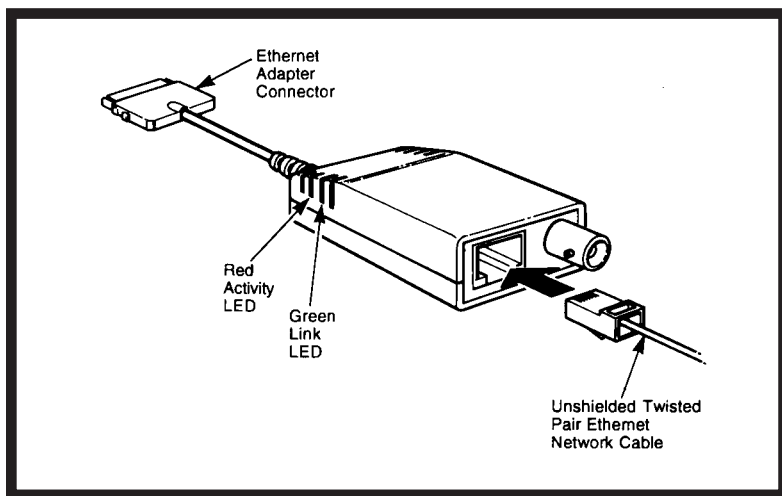

Media Access Module 10BaseT Network Connection

Interface Cabling and Pinout

The direct connect 10BaseT cable provided with the Trumpcard is wired for direct connection to an Ethernet 10BaseT Concentrator. If the premises wiring scheme you are using does not match this wiring scheme, then contact Ositech for assistance on how to make a 10BaseT Network connection in your environment.

Lead	Signal
1	TX+
2	TX-
3	RX+
4	nc
5	nc
6	RX-
7	nc
8	nc
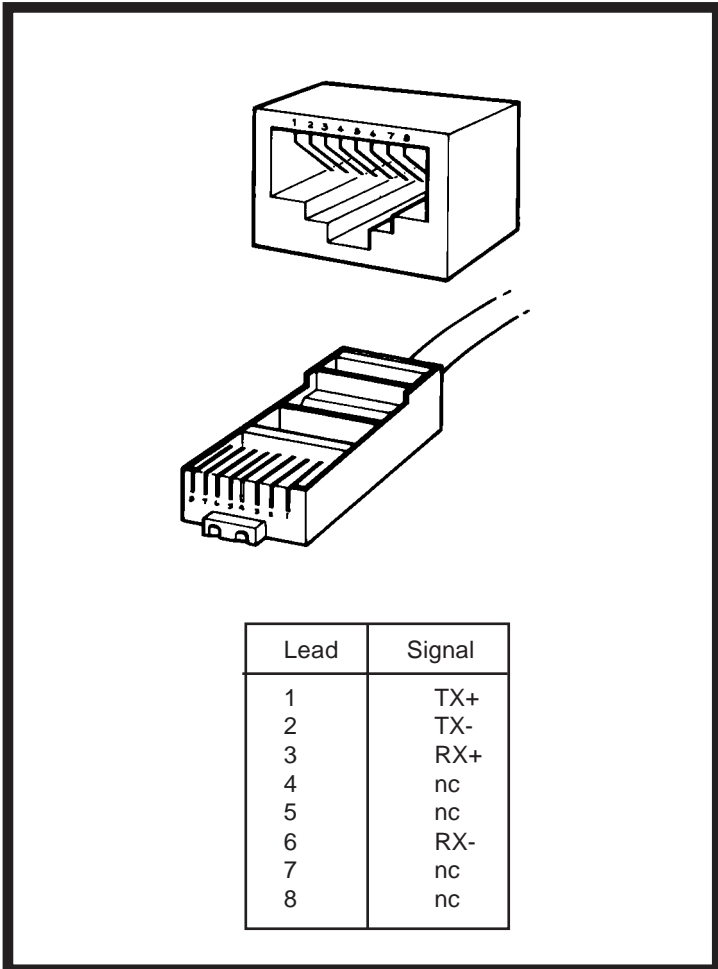
10BaseT Pinout

Concentrators

The Trumpcard, when used with 10BaseT Twisted-pair cable, must always connect to a concentrator. This results in a star-wired Network with the concentrator at the centre of the star. The Trumpcard is compatible with 10BaseT concentrators from a variety of vendors.

Twisted Pair Network Characteristics

Standard	IEEE 802.3 10BaseT
Data Rate	10 Mbits per second
Maximum length of connecting nodes per network	100m (328')
Maximum number of computer nodes per network	1024
Twisted-pair cable	Category 3 (10 mbps) or Category 4 (16 mbps) or Category 5 (100 mbps) that meet the requirements of EIA/TIA-568 and EIA/TIA TSB-36.

Connecting to 10Base2 Thin Ethernet Networks

The Trumpcard can only be connected to a 10Base2 Network by using the Media Access Module.

The following items are required to interconnect the Trumpcard to a 10Base2 thin coax Ethernet Network:

- A BNC coaxial T-connector.

- Coaxial cable(s) and a 50 ohm cable terminator if required.

To connect the Trumpcard to a 10Base2 Network connection using the Media Access Module, follow these steps:

- For the multi-function Trumpcard, the Ethernet connection is identified on the back of the PC Card; insert the PCMCIA Ethernet Adapter connector on the Media Access Module into the one marked Ethernet.

- Attach the T-connector to the BNC connector on the Media Access Module, align the notches in the T-connector with the posts on the BNC connector, push the connector in, and twist about one-quarter turn (until it is seated properly).

- Connect the coaxial cable(s) to the open ends of the T-connector to form a single Network segment. If at the end of the network segment, attach a 50 ohm cable terminator to the unused T-connector post.

Note: *The Trumpcard is keyed to go in one way only. If you feel resistance before the it is fully inserted, remove it, turn it over, and re-insert it.*
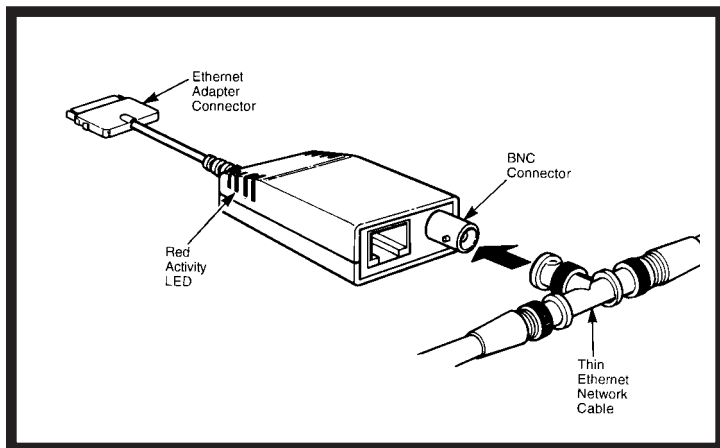
Media Access Module 10Base2 Network Connection

Thin Coax Ethernet Segment

A thin coax Ethernet cable segment is the length of cable between terminations. The Trumpcard PC Card functions with 185 meter (607 foot with IEEE 10Base2) or 300 meter (984 foot, using the extended length option) cable segments. The two above mentioned types of thin coax Ethernet cabling (IEEE 10Base2 and extended length option) are commonly used. Pick one type of cabling and **consistently** obey the protocol for that type throughout your network. If you mix the rules (for example, using two repeater links permitted by 10Base2 with the 100 nodes per segment permitted under the extended length option), your network may have an excessive number of errors or may not operate at all.

If your network uses standard 185-meter cable segments, all thin Ethernet cable segments in the network can be up to 185 meters long. Five standard length cable segments may be connected in line using commercially available repeaters. The total network span with five standard length segments is 925 meters (3,035 feet). No more than four repeaters can be on the signal path from one node to any other node. The standard 185 meter segment length is recommended because it allows you to use common thin coax Ethernet components which conform to the IEEE standard.

If your network is using extended length 300-meter cable segments , all thin coax Ethernet cable segments in the network can be a maximum of 300 meters long. Three 300-meter cable segments may be connected in line using repeaters. The total network span with three extended length segments is 900 meters (2,953 feet). No more than two repeaters can be in the signal path from one node to any other node.

If you are using extended length segments, all repeaters and transceivers must be designed for 300-meter operation. In addition, all LAN adapters must be configured to operate with the extended segment length.

Note: *You **cannot** use Ethernet adapters to extend 185-meter segments to 300-meter segments unless all LAN adapters and repeaters in the network are capable of operation on the extended segment length.*

Thin Ethernet Network Characteristics

Characteristics	Standard Length Segment	Extended Length Segment
Standard	IEEE 802.3 10Base2	IEEE 802.3 10Base2
Data Rate	10 Mbits per second	10 Mbits per second
Segment Length	185m (607')	300m (984')
Maximum number of segments between nodes	3 coax, plus 2 repeater links	3 coax; no repeater links
Maximum number of repeaters between nodes	4 when using 2 repeater links	2
Network Span	925m (3035')	900m (2953')
Maximum number of nodes per segment	30	100
Maximum number of nodes per network	1024	1024
Minimum space between nodes	0.5m (1.64'/20")	0.5m (1.64'/20")
Cable type	RG58 A/U or C/U, 50 ohm	RG58 A/U or C/U, 50 ohm

Media Access Module LED Indicators

The Media Access Module has two LED indicators used to provide a visual indication of the state of the network link. The LED indicators will only be operational once the Trumpcard network driver has been loaded or during Diagnostic testing.

Activity LED (RED)

The Activity LED will flash whenever any network activity is detected by the Media Access Module. The Activity LED can be used as a simple method of determining if the Media Access Module is exchanging data with the network.

Link LED (GREEN)

The Link LED lights whenever a twisted pair connection between the Media Access Module and the 10BaseT concentrator has been made. The Link LED is not used for 10Base2 thin coax connections. If the Link LED is not lit this would indicate that a connection between the Media Access Module and the 10BaseT concentrator has not been detected. Verify the wiring and make sure that a Trumpcard network driver has been loaded.

Section Three

Operation

Socket Services and Card Services

Your computer having Personal Computer Memory Card International Association (PCMCIA) support allows you to insert credit card-sized devices called PC Cards. The PCMCIA standard defines both a hardware and software standard. The software standard identifies two specifications which are called Socket Services and Card Services.

Socket Services provides lowest level support by providing a common interface to varying types of PCMCIA adapter hardware. Card Services provides support for PCMCIA aware device drivers (known as clients), and is responsible for coordinating access to the PC Cards and allocating system resources among client drivers.

Ositech's Trumpcard software is PCMCIA aware and will work with most Socket Services and Card Services available, that conform to the PCMCIA 2.x standard. The Trumpcard software will operate as a client driver when used with Card Services, and can coexist with other client drivers (i.e. Super Clients, Flash, ATA, ...). When operating with Card and Socket Services the Trumpcard software will support hot removal and insertion of the PC Card.

If Card Services is not detected by the Trumpcard software but Socket Services is, then the software will operate with Socket Services only. Support for Socket Services is provided to allow for differing types of PCMCIA hardware to be used by the Trumpcard software, but the full range of features will not be supported (mainly hot removal/insertion).

It is also possible to use the Trumpcard software without Card Services or Socket Services but, as with only using Socket Services, the full range of features will not be supported. If your computer did not come equipped with Card and Socket Services, contact your computer manufacturer or dealer for more details.

Multi-Function Configuration

If the Trumpcard you are using provides other functions in addition to Ethernet networking, please refer to the *Installation Manual* accompanying the Trumpcard. Details on how to enable and use all the functions provided on the Trumpcard will be discussed in that manual.

Network Software Installation

In order to assist with the installation and configuration of networks drivers, Ositech has provided Installation Software for the DOS / Windows and OS/2 operating systems. Follow the instructions printed on the appropriate diskette label for details on how to invoke the Installation Software. For operating systems other than DOS / Windows and OS/2, please refer to the appropriate section for instructions on how to install and configure the Network driver under these operating systems.

The following sections provide details on how to install and configure the Trumpcard Ethernet Network drivers. The Network operating systems have been listed alphabetically.

Note: *If the Trumpcard you are using provides other functions in addition to Ethernet networking, please refer to the Installation Manual accompanying the Trumpcard for details on how to operate the functions simultaneously.*

Banyan VINES

To install Banyan VINES version 4.x and later on a DOS NDIS workstation, you must manually install the Ositech Trumpcard NDIS device driver.

1. Follow the instructions for workstation installation in accordance with your Banyan VINES workstation installation manual.

2. At this point you should have all the relevant Banyan VINES files in a directory on your hard disk drive. (In this manual we will assume that the Banyan Vines directory is called \VINES).

3. Copy the files PROTOCOL.INI and OTCETH.DOS from the \VINES directory on the Trumpcard driver diskette to the Banyan VINES directory.

   (i.e. `COPY  A:\VINES\OTCETH.DOS  C:\VINES`)

4. Use an ASCII text editor and edit the CONFIG.SYS file to include the following lines:

   ```
   DEVICE=C:\VINES\PROTMAN.DOS /I:C:\VINES
   DEVICE=C:\VINES\OTCETH.DOS
   ```

   (The command to edit the file is `EDIT C:\CONFIG.SYS`)

5. Change to the \VINES directory.

6. Type `PCCONFIG` and select 'Network Card Settings' and then select 'NDIS Ethernet'.

7. At the 'PROTOCOL.INI' bindings prompt type `OSITECH_NIF` and press [F10] to save and press [ESC] to return to main menu.

8. Select 'Login Environment Settings', then select 'Default Communications driver', then select 'NDIS Ethernet'. Press [ESC] to return to main menu and [F10] to save.

Note: *Keyword specifications associated with the NDIS driver are explained in Appendix B, Error Messages in Appendix C.*

DEC PATHWORKS

To install DEC PATHWORKS version 4.1 on a DOS NDIS workstation, you can use the automated installation provided with PATHWORKS for the Ositech Trumpcard NDIS device driver.

1. Install DEC PATHWORKS using the instructions provided in the DEC PATHWORKS manual.

2. In order to set up the Trumpcard Network adapter for use with DEC PATHWORKS, please run the PATHWORKS Network setup software. (i.e. NETSETUP).

3. Choose 'Ethernet controller type' and select 'Other NDIS'.

4. Insert the Trumpcard driver diskette into drive A.

5. When prompted for the path to the driver file, type :

   `A:\DOS\OTCETH.DOS`

6. When prompted for the path to the `PROTOCOL.INI` file, type:

   `A:\DOS`

7. Complete NETSETUP and return to the DOS prompt. The PROTOCOL.INI file in your DECNET directory should appear something like the following:

```
[protocol manager]
DRIVERNAME=PROTMAN$

[IPX4MAC]
DRIVER=IPX$MAC
BINDINGS=OTCETH.DOS

[DATALINK]
DRIVERNAME=LL$MAC
LG_BUFFERS=16
SM_BUFFERS=6
OUTSTANDING=32
HEURISTICS=6
BINDINGS=OTCETH.DOS

[OTCETH.DOS]
DRIVERNAME=OTCETH$
```

Your CONFIG.SYS file should contain the following lines :

```
DEVICE=C:\DECNET\PROTMAN.SYS /I:C:\DECNET
DEVICE=C:\DECNET\OTCETH.DOS
```

Your AUTOEXEC.BAT file should contain the following line:

```
CALL \DECNET\STARTNET
```

Note: *Keyword specifications associated with the NDIS driver are explained in Appendix B, Error Messages in Appendix C.*

FTP Software LanWatch

The Ositech Trumpcard hardware and software supports promiscuous mode operation, allowing it to work with products such as FTP's LanWatch.

The Ositech Trumpcard NDIS device driver installation will be automated to work with LanWatch once copied over to your hard disk.

1. Create a directory on the C: drive called NDIS (i.e. `MD C:\NDIS`).

2. Copy the files OTCETH.DOS and PROTOCOL.INI from the \FTP directory on Trumpcard driver diskette to \NDIS directory on C: drive (i.e. `COPY  A:\FTP\OTCETH.DOS  C:\NDIS`).

3. Run LANWatch install program (i.e. `INSTALL`).

4 When prompted for 'Packet driver or NDIS driver' select 'NDIS driver'.

5. When asked do you have a PROTOCOL.INI file answer:
   ```
   YES
   ```

6. When prompted for path to PROTOCOL.INI file type:
   ```
   C:\NDIS
   ```

7. When asked which driver does LanWatch bind to type:
   ```
   OSITECH_NIF
   ```

8. When prompted for full path and filename of NDIS driver type:
   ```
   C:\NDIS\OTCETH.DOS
   ```

Continue with installation.

The following are examples of the CONFIG.SYS, AUTOEXEC.BAT and PROTOCOL.INI file modifications after installing LanWatch.

CONFIG.SYS

```
DEVICE=C:\LW\PROTMAN.DOS /I:C:\NDIS
DEVICE=C:\LW\FTPSOFT.DOS
DEVICE=C:\NDIS\OTCETH.DOS
```

AUTOEXEC.BAT

```
C:\LW\NETBIND.COM
```

PROTOCOL.INI

```
[OSITECH_NIF]
DRIVERNAME=OTCETH$

[LANWATCH]
DRIVERNAME = FTPSOFT$
BINDINGS = OSITECH_NIF
```

Note: *Keyword specifications associated with the NDIS driver are explained in Appendix B, Error Messages in Appendix C.*

IBM LAN Server

When installing IBM LAN Server 3.0 or 4.0 you may use the OEM Network adapter driver import capability for the Ositech Trumpcard NDIS device driver. For a DOS workstation, follow the instructions for installing the IBM LAN Support Program.

For an OS/2 workstation you must first install LAN Adapter and Protocol Support (LAPS) and then import the Trumpcard driver.

1. Follow the instructions for installing LAPS in accordance with your IBM LAN Adapter and Protocol Support Configuration Guide. You must first install LAPS on the workstation in order to install additional Network adapter drivers.

2. Issue the LAPS command from the IBMCOM subdirectory of the drive that contains the copy of LAPS.

3. Select 'INSTALL' from the LAPS logo window.

4. When prompted for the source path of additional Network drivers enter, A:\OS2. Insert the Trumpcard driver diskette into Drive A.

5. Select 'Configure', then select 'Configure LAN Transports', and then select 'Continue'.

6. Remove any existing adapters and protocols from the Current Configuration menu that are not required.

7. Select 'Ositech Trumpcard' adapter from the Network Adapters menu and then select 'Add'.

8. Add the required protocols from the Protocol menu, and finally select 'OK' when complete.

After installation of the Trumpcard NDIS device driver and protocols, you must install the needed requester (DOS or OS/2) to complete the installation.

The following are examples of changes made to the CONFIG.SYS and PROTOCOL.INI files on an OS/2 workstation installation.

CONFIG.SYS

```
DEVICE=C:\IBMCOM\LANMSGDD.OS2 /I:C:\IBMCOM
DEVICE=C:\IBMCOM\PROTMAN.OS2 /I:C:\IBMCOM
RUN=C:\IBMCOM\PROTOCOL\NETBIND.EXE
RUN=C:\IBMCOM\LANMSGEX.EXE
DEVICE=C:\IBMCOM\PROTOCOL\NETBEUI.OS2
DEVICE=C:\IBMCOM\PROTOCOL\NETBIOS.OS2
DEVICE=C:\IBMCOM\PROTOCOL\LANDD.OS2
DEVICE=C:\IBMCOM\PROTOCOL\LANDLLDD.OS2
DEVICE=C:\IBMCOM\MACS\OTCETH.OS2
RUN=C:\IBMCOM\PROTOCOL\LANDLL.EXE
```

PROTOCOL.INI

```
[PROT_MAN]
DRIVERNAME = PROTMAN$

[IBMLXCFG]
OSTETH_nif = OTCETH.nif
LANDD_nif = LANDD.nif
NETBEUI_nif = NETBEUI.nif

[LANDD_nif]
DRIVERNAME = LANDD$
BINDINGS = OTCETH_nif
ETHERAND_TYPE = "I"
:
:

[NETBEUI_nif]
DRIVERNAME = NETBEUI$
BINDINGS = OTCETH_nif
ETHERAND_TYPE = "I"
:
:

[OTCETH_nif]
DRIVERNAME = OTCETH$
```

Note: *Keyword specifications associated with the NDIS driver are explained in Appendix B, Error Messages in Appendix C.*

IBM LAN Support Program

When installing the IBM Local Area Network Support Program (LSP) version 1.3 or later, you may use the OEM Network adapter driver import capability for the Ositech Trumpcard NDIS device driver.

Follow the instructions in the LSP manual User's Guide for adapter installation using the *Installation Aid*. Any references to an ADAPTER OPTION DISKETTE means the Trumpcard Driver diskette provided.

1. At the 'Environment Information' screen, answer YES for the question 'Do you have an adapter Option Diskette?'.

2. At the 'Process Adapter Option Diskette' screen follow the instructions and:

   • Remove LSP 1.3 Installation Diskette from the drive.

   • Insert the Trumpcard driver diskette.

   • Press [ENTER].

3. At the 'Current Configuration' screen go to the box 'Selections for Adapter' and select 'Ositech Trumpcard'.

4. Press [F4] – to install the IBM LSP and the Ositech Trumpcard NDIS driver.

End of Installation.

The following are examples of possible CONFIG.SYS file setups. These lines would be present in the CONFIG.SYS file.

For one NDIS adapter with both IEEE 802.2 and NETBIOS support, the sequence is as follows:

```
DEVICE=C:\LSP\PROTMAN.DOS /I:\LSP
DEVICE=C:\LSP\OTCETH.DOS
DEVICE=C:\LSP\DXMA0MOD.SYS 001
DEVICE=C:\LSP\DXME0MOD.SYS
DEVICE=C:\LSP\DXMT0MOD.SYS O=N
```

For one NDIS adapter with only NETBIOS support, the sequence is as follows:

```
DEVICE=C:\LSP\PROTMAN.DOS /I:\LSP
DEVICE=C:\LSP\OTCETH.DOS
DEVICE=C:\LSP\DXMA0MOD.SYS.001
DEVICE=C:\LSP\DXMJ0MOD.SYS
```

The following is an example of a possible PROTOCOL.INI file setup

```
[PROTMAN_MOD]
DRIVERNAME = PROTMAN$

[DXME0_MOD]
DRIVERNAME = DXME0$
BINDINGS = OSITECH_MOD

[OSITECH_MOD]
DRIVERNAME = OTCETH$
```

Also in your AUTOEXEC.BAT file the following line should have been added:

```
C:\LSP\NETBIND
```

Note: *Keyword specifications associated with the NDIS driver are explained in Appendix B, Error Messages in Appendix C.*

Microsoft LAN Manager

To install Microsoft LAN Manager versions 2.0, 2.1 and 2.2, the Trumpcard driver diskette contains the required files and directory structure to allow the LAN Manager installer to import an OEM disk.

1. Begin installation of LAN Manager using SETUP from the LAN Manager Installation diskettes.

2. When prompted to select the available Network adapter driver, choose 'Other Driver' at the bottom of the screen.

3. When prompted, insert the Trumpcard driver diskette.

4. Select the 'OSITECH TRUMPCARD' from the menu.

5. Continue with installation until complete.

Your PROTOCOL.INI file in your LANMAN directory should appear as follows:

```
[PROTMAN_MOD]
 DRIVERNAME=PROTMAN$

[NETBEUI_NIF]
 BINDINGS=OSITECH_MOD

[OSITECH_MOD]
 DRIVERNAME=OTCETH$
```

In your CONFIG.SYS the following lines should be present:

```
DEVICE=C:\LANMAN\PROTMAN.DOS /I:C:\LANMAN
DEVICE=C:\LANMAN\OTCETH.DOS
```

In your AUTOEXEC.BAT file the following line should appear

```
C:\LANMAN\NETBIND
```

Note: Keyword specifications associated with the NDIS driver are explained in Appendix B, Error Messages in Appendix C.

Microsoft Windows for Workgroups

To install Microsoft Windows for Workgroups (WFW) versions 3.1 and 3.11, the Trumpcard driver diskette contains the required files to allow the WFW installer to import an OEM disk.

1. Run the Windows for Workgroups installation according to the manual provided.

2. When prompted for 'INSTALL NEW NETWORK ADAPTER', select 'Unlisted' or 'Updated Network Adapter'.

3. When prompted to 'INSERT NETWORK DRIVER DISKETTE IN DRIVE A:', place the Trumpcard driver diskette in drive A.

4. For WFW 3.1 enter

   ```
   A:\WFW\31
   ```

   For WFW 3.11 enter

   ```
   A:\WFW\311
   ```

   If you have used the configuration software to configure the Network driver diskette use the default A:\

   Then select 'OK'.

5. Select 'OSITECH TRUMPCARD' from menu.

6. Continue with installation until complete.

If you have setup to use both the WFW 3.11 and Novell ODI, the following example shows the PROTOCOL.INI, CONFIG.SYS, AUTOEXEC.BAT and NET.CFG file changes made during the installation of Windows for Workgroups version 3.11.

Your PROTOCOL.INI file under the Windows directory should contain the following :

```
[Network.setup]
version=0x3110
netcard=osi$otceth,1,OSI$OTCETH,4
netcard=ms$odimac,1,MS$ODIMAC,4
transport=ms$nwlinknb, NWLINK
transport=ms$netbeui, NETBEUI
lana0=osi$otceth,1,ms$netbeui
lana1=ms$odimac,1,ms$netbeui
lana2=osi$otceth,1,ms$nwlinknb

[net.cfg]
PATH=C:\NOVELL\NET.CFG

[OSI$OTCETH]
[LINK DRIVER OTCETH]
[Link Driver XXXX]

[Link Support]
NewMaxBoards=Max Boards 8
OldMaxBoards=Max Boards 8
```

```
[NWLINK]
BINDINGS=OTCETH

[NETBEUI]
BINDINGS=OTCETH,XXXX
LANABASE=0
SESSIONS=10
```

In your CONFIG.SYS the following line should be present:

```
DEVICE=C:\WINDOWS\IFSHLP.SYS
```

In your AUTOEXEC.BAT the following lines should be present:

```
C:\WINDOWS\NETSTART
CD \NOVELL
LSL
OTCETH
IPXODI
C:\WINDOWS\ODIHLP.EXE
NETX
```

Your NET.CFG file under the Novell directory would contain the following lines:

```
LINK DRIVER OTCETH
   Frame Ethernet_802.3
   Frame Ethernet_II
   Frame Ethernet_802.2
   Frame Ethernet_SNAP

LINK DRIVER XXXX
   Frame Ethernet_802.3
   Frame Ethernet_II
   Frame Ethernet_802.2
   Frame Ethernet_SNAP

Link Support
   Max Boards 8
```

Refer to the Installation Instructions for Novell Networks for details on Netware installation and setup.

Note: *If the Trumpcard is a Multi-Function adapter, additional steps may be required to complete the full installation. Refer to the Installation Guide accompanying the adapter for more details.*

Note: *Keyword specifications associated with the NDIS driver are explained in Appendix B, Error Messages in Appendix C.*

Microsoft Windows NT 3.5

The Trumpcard Windows NT 3.5 NDIS3.0 driver is a Network driver and enabler for Intel, Databook and compatible PCMCIA equipped computers. With this driver installed, networking functions will be available under Windows NT 3.5.

The Trumpcard Windows NT 3.5 driver requires that the Trumpcard PC Card be inserted prior to the driver being loaded. If no Trumpcard is found, the driver will not be loaded and networking functions will NOT be available. When the driver has successfully loaded, if the Trumpcard is now removed from the PCMCIA slot unpredictable results will occur. The Trumpcard Windows NT 3.5 Driver DOES NOT support hot insertion and removal (hot swapping).

To install the Trumpcard NDIS3.0 Network driver for Windows NT 3.5, the Trumpcard Network Drivers diskette contains the required files to allow Windows NT installer to import an OEM disk.

1. From the Main Program Group select CONTROL PANEL, and then NETWORK.

2. Choose ADD ADAPTER, then select <OTHER> from the Network Adapter Card list of choices.

3. Select CONTINUE, when prompted, to insert the disk and to enter a path name, place the Network Driver diskette into the floppy drive and enter A:\WINNT35.

4. The default settings will work in most environments. Select CONTINUE once finished configuring the LAN driver, select OK once finished setting up the Network.

5. Restart the computer to allow loading the newly installed Network driver.

Note: If the Trumpcard is a Multi-Function adapter, additional steps may be required to complete the full installation. Refer to the Installation Guide accompanying the adapter for more details.

Note: Keyword specifications associated with the NDIS driver are explained in Appendix B, Error Messages in Appendix C.

Microsoft Workgroup Connection for DOS

To install Workgroup Connection for DOS, the Trumpcard driver diskette contains the required files to allow the installer to import an OEM diskette.

1. Run SETUP from MSWGCN Workgroup Connection diskette.

2. When prompted to select a Network card, select
                "Network card not shown on list below..."

3. When prompted for the location (path) of the OEM driver, insert the Trumpcard driver diskette and enter A:\WFW\31

4. Press ENTER to select the highlighted entry: Ositech Trumpcard

5. Continue with the installation, if prompted to re-insert the OEM driver diskette be sure to enter the location (path) A:\WFW\31 as well.

The following are examples of changes made to the CONFIG.SYS, AUTOEXEC.BAT and PROTOCOL.INI

CONFIG.SYS

```
DEVICE=C:\DOS\PROTMAN.DOS /I:C:\DOS
DEVICE=C:\DOS\WORKGRP.SYS
DEVICE=C:\DOS\OTCETH.DOS
```

AUTOEXEC.BAT

```
C:\DOS\NET START
```

PROTOCOL.INI

```
[Network.setup]
version=0x3110
netcard=ms$otceth$nic,1,MS$OTCETH$NIC
transport=ms$netbeui,MS$NETBEUI
lana0=ms$otceth$nic,1,ms$netbeui

[protman]
DriverName=PROTMAN$
PRIORITY=MS$NETBEUI

[MS$OTCETH$NIC]
DriverName=OTCETH$
MEM=0xc800
Interrupt=5
IOBase=0x300
```

```
[MS$NETBEUI]
Drivername=netbeui$
SESSIONS=6
NCBS=12
BINDINGS=MS$OTCETH$NIC
LANABASE=0
```

Note: *Keyword specifications associated with the NDIS driver are explained in Appendix B, Error Messages in Appendix C.*

NDIS (Generic)

These steps outline how to install the Trumpcard NDIS device driver for Network operating systems that are not described in this manual, and will operate with a NDIS driver. The easiest way to perform the installation is to install a NDIS driver that is supported by the Network operating system, and then edit the required files to use the Trumpcard NDIS driver. These steps will apply to both DOS and OS/2 environments.

The 3COM Etherlink driver will be used as an example, but any NDIS driver will do.

1. Follow the instructions for workstation installation in the installation manual.

2. When prompted for the adapter, select any of the available ethernet adapters that support NDIS (i.e. 3COM ETHERLINK).

3. Continue with the installation until complete.

4. After the automatic installation has completed, you must make changes to your CONFIG.SYS and PROTOCOL.INI files, as well as copying over the Trumpcard NDIS driver.

5. First edit the CONFIG.SYS file on the root `C:>` drive. This is done by using a standard text editor such as EDIT in DOS or E in OS/2.

6. In the CONFIG.SYS file, locate the lines that are related to the Network operating system being used. Typically the lines would be:

```
DEVICE=C:\<path>\PROTMAN.SYS /I:<path>
DEVICE=C:\<path>\ELNK.DOS  <-- DOS
                or
DEVICE=C:\<path>\ELNK.OS2  <-- OS2
```

Change the second line above to:

```
DEVICE=C:\<path>\OTCETH.DOS  <-- DOS
                 or
DEVICE=C:\<path>\OTCETH.OS2  <-- OS2
```

Save the changes made to this file.

7. Next, edit the PROTOCOL.INI file, the file will be in the `<path>` directory.

   In this file under the heading [ELNK_NIF] please change the line DRIVERNAME=ELNK$ to read DRIVERNAME=OTCETH$

   Also remove any existing settings under this line(i.e. INTERRUPT, IOADDRESS, DMACHANNEL, etc.)

   Remove any keywords that were for the 3COM Etherlink driver. Add any required settings using the keywords described in Appendix B. Save the changes made to this file.

8. Finally, place a copy of the Trumpcard NDIS Device Driver (OTCETH.DOS from the \DOS subdirectory or OTCETH.OS2 from the \OS2 subdirectory) on the Trumpcard driver diskette to the directory on your hard disk drive that contains your Network files `<path>`.

Your Network installation is now complete.

Note: *Keyword specifications associated with the NDIS driver are explained in Appendix B, Error Messages in Appendix C.*

Novell Netware for DOS

Depending on the version of Netware, the installation of the Ositech Trumpcard ODI driver will be done automatically or must be done manually.

Netware NETX

For Netware using NETX.EXE, the Trumpcard ODI driver must be installed manually by copying the Trumpcard ODI driver (OTCETH.COM) to the directory containing the workstation software.

The Trumpcard ODI driver is located in the \NETWARE\DOS subdirectory on the Trumpcard driver diskette. In order to configure the Trumpcard ODI driver, a NET.CFG file must be created; refer to Appendix A for ODI keywords.

Netware VLM

For Netware using VLM.EXE the Trumpcard ODI driver can be installed automatically by using the Netware Client diskettes.

1. Follow the instructions in the Workstation Basics and Installation for adapter installation using the 'Netware Client Install'. Any references to an ADAPTER OPTION DISKETTE means the Trumpcard driver diskette provided with the PC Card.

2. Proceed through steps 1, 2, and 3 of the Netware Client Install making any changes as required.

3. At STEP 4 of the Netware Client Install, press [ENTER] to install the Netware adapter driver.

4. When prompted to insert the adapter diskette, follow the instructions and Remove the Netware Client Installation Diskette from the drive. Insert the Trumpcard driver diskette. Press [ENTER].

5. Follow the instructions to select the Trumpcard ODI driver and configure the driver as required.

6. At STEP 5 press [ENTER] to install the Client software on the workstation.

End of Installation.

Loading the DOS ODI Driver

The DOS ODI driver OTCETH.COM for the Trumpcard PC Card is an executable DOS TSR (Terminate and Stay Resident) program.

It must be loaded ***always after*** the LSL (Link Support Layer) module and ***before*** the IPXODI (IPX Stack Protocol).

An example of a possible AUTOEXEC.BAT file allowing the loading of necessary modules to establish a link from a DOS Workstation to a Netware Server is:

```
LSL
OTCETH
IPXODI
NETX or VLM
```

Note: *If your Ethernet frame type is NOT 802.2, you must use the NET.CFG file to supply the appropriate frame type. The OTCETH driver will default to 802.2 in accordance with Novell's specifications.*

Note: *Keyword specifications associated with the ODI drivers are explained in Appendix A, Error Messages in Appendix C.*

Novell Netware for OS/2

When installing Netware for OS/2, you may use the automatic installation for the Ositech Trumpcard ODI device driver.

Netware 3.x and 4.x

1. Follow the instructions in the Netware Requester for OS/2 manual on how to Install and Configure the Novell Netware OS/2 Requester.

2. During installation of the requester, when prompted for the Network Interface Card Driver, enter OTCETH.SYS.

3. The installation utility will confirm if this is a third party NIC driver, enter YES

4. When prompted to enter the file to install, enter

   A:\NETWARE\OS2\OTCETH.SYS

   Insert the Trumpcard driver diskette into Drive A.

5. Continue with the Netware requester installation, the final step will be to configure the NET.CFG file. See Appendix A for ODI keywords.

End of Installation.

Loading the OS/2 ODI Driver

The OS/2 ODI driver OTCETH.SYS for the Trumpcard is an OS/2 device driver, it must **always** be loaded **after** the LSL (Link Support Layer) module and **before** the IPX (IPX Protocol Stack).

Below is an example of a possible CONFIG.SYS file which allows the loading of necessary modules to establish a link from an OS/2 Workstation to a Netware Server:

```
REM --- Netware Requester statements BEGIN ---
DEVICE=C:\NETWARE\LSL.SYS
RUN=C:\NETWARE\DDAEMON.EXE
DEVICE=C:\NETWARE\OTCETH.SYS
DEVICE=C:\NETWARE\IPX.SYS
rem DEVICE=C:\NETWARE\SPX.SYS
rem RUN=C:\NETWARE\SPDAEMON.EXE
rem DEVICE=C:\NETWARE\NMPIPE.SYS
rem DEVICE=C:\NETWARE\NPSERVER.SYS
rem RUN=C:\NETWARE\NPDAEMON.EXE NP_COMPUTERNAME
DEVICE=C:\NETWARE\NWREQ.SYS
IFS=C:\NETWARE\NWIFS.IFS
RUN=C:\NETWARE\NWDAEMON.EXE
rem DEVICE=C:\NETWARE\NETBIOS.SYS
rem RUN=C:\NETWARE\NBDAEMON.EXE
rem DEVICE=C:\NETWARE\VIPX.SYS
rem DEVICE=C:\NETWARE\VSHELL.SYS
REM --- Netware Requester statements END ---
```

Note: *If your Ethernet frame type is NOT 802.2, you must use the NET.CFG file to supply the appropriate frame type. The OTCETH driver will default to 802.2 in accordance with Novell's specifications.*

Note: *Keyword specifications associated with the ODI driver are explained in Appendix A, Error Messages in Appendix C.*

Novell Unixware DLPI Driver

The Trumpcard DLPI Driver is an AT&T Data Link Provider Interface (DLPI) compliant loadable STREAMS driver, for UNIX System V Release 4.2. The driver has a built in enabler for Intel, Databook and compatible PCMCIA equipped computers. With this driver installed networking functions will be available under Unixware.

The Trumpcard DLPI driver requires that the Trumpcard PC Card be inserted prior to the driver being loaded. If no Trumpcard is found the driver will not be loaded and networking functions will NOT be available. When the driver has successfully loaded, unpredictable results will occur if the Trumpcard is now removed from the PCMCIA slot. The Trumpcard DLPI Driver DOES NOT support hot insertion and removal.

To install the Trumpcard DLPI driver, you need to create an Ositech DLPI Driver Disk using the INSTALL shell script from the DOS formatted Network Drivers distribution diskette provided with the PC Card. The first step is to copy the INSTALL shell script to the Unixware /tmp directory from the distribution diskette \UNIX\UW directory.

The installation process performed by the INSTALL shell script consists of two basic steps:

1) Creating the Ositech DLPI Driver Disk from the compressed disk image extracted from the osi_uw.tar archive.

2) Second, installing the driver from the Ositech DLPI Driver Disk using the pkgadd utility.

Note: *If the Trumpcard is a Multi-Function PC Card, additional steps may be required to complete the full installation. Refer to the Installation Guide accompanying the PC Card for more details.*

In order to successfully complete the installation process the following is required:

- One blank 3.5 inch high density (1.44MB) diskette labelled "Ositech Trumpcard DLPI Driver Disk".

- IO ports and IRQs that you wish to assign to the LAN function. The LAN will need 32 ports (default of 0x300-0x31f).

- A 4K memory window that you can assign to the driver in the range of 0xc0000 and 0xf0000. The default is 0xc8000.

- Ability to use pkgadd to install and configure the Network software.

- 2MB of free disk space for the various temporary files that are created during the install process on the file system containing the /tmp directory.

To create the Ositech Trumpcard DLPI Driver install diskette, and to install the driver, you need only execute the INSTALL shell script that you have copied to the /tmp directory. You can only execute the INSTALL script after you have become the root user.

Note: *It is highly recommended that you run the shell script as root, because the installation process will require that you relink the kernel.*

```
$ su
enter the root password at the Password: prompt

# cd /tmp
# pkgadd -d diskette1
```

Then simply follow the instructions provided by the installation script to complete the installation of the driver.

SCO UNIX LLI Driver

The Trumpcard LLI Driver is a Network driver and enabler for Intel, Databook and compatible PCMCIA equipped computers. With this driver installed networking functions will be available under SCO UNIX.

The Trumpcard LLI driver requires that the Trumpcard PC Card be inserted prior to the driver being loaded. If no Trumpcard is found, the driver will not be loaded and networking functions will NOT be available. When the driver has successfully loaded, unpredictable results will occur if the Trumpcard is now removed from the PCMCIA slot. The Trumpcard LLI Driver DOES NOT support hot insertion and removal.

To install the Trumpcard LLI driver, you need to create an Ositech LLI Driver Disk using the INSTALL shell script from the DOS formatted Network Drivers distribution diskette provided with the adapter. The first step is to copy the INSTALL shell script to the UNIX /tmp directory from the distribution diskette \UNIX\SCO directory. If you do not have the DOS file system support installed on your UNIX system, then you must also copy the osi_sco.tar file to the /tmp directory. If you wish to install the DOS file system support, then execute the UNIX command "mkdev dos" as the root user, and reboot your machine.

The installation process performed by the INSTALL shell script consists of three basic steps:

1) Creating the Ositech LLI Driver Disk from the compressed disk image extracted from the osi_sco.tar archive.

2) Second, installing the driver from the Ositech LLI Driver Disk using the custom utility.

3) Binding the Network software to the Trumpcard driver using netconfig.

Note: *If the Trumpcard is a Multi-Function PC Card additional steps may be required to complete the full installation. Refer to the Installation Guide accompanying the PC Card for more details.*

In order to successfully complete the installation process the following is required:

- One blank 3.5 inch high density (1.44MB) diskette libelled "Ositech Trumpcard LLI Driver Disk".

- IO port and IRQ that you wish to assign to the LAN function. You can use *hwconfig* to see what devices are currently configured into your UNIX system. The LAN will need 32 ports (default of 0x300-0x31f).

- A 4K memory window that you can assign to the driver in the range of 0xc0000 and 0xf0000. The default is 0xc8000.

- Ability to use *netconfig* to configure the Network software.

- 2MB of free disk space for the various temporary files that are created during the install process on the file system containing the /tmp directory.

To create the Ositech Trumpcard LLI Driver install diskette, and to install the driver, you need only execute the INSTALL shell script that you have copied to the /tmp directory. You can only execute the INSTALL script after you have become the root user.

Note: *It is highly recommended that you run the shell script as root, in single-user mode, because the installation process will require that you relink the kernel.*

```
$su
enter the root password at the Password: prompt
```

If you are not already in the System Maintenance mode, use the following command to reboot the machine:

```
 # /etc/shutdown -i1

INIT: SINGLE USER MODE
```

Type CONTROL-d to proceed with normal setup,
(or give root password for system maintenance):

enter the root password to activate the System Maintenance mode

```
# cd /tmp
# sh install
```

Then simply follow the instructions provided by the installation script to complete the installation of the driver.

Section Four

Appendices

APPENDIX A – ODI Keywords

The following ODI keywords are supported by the Trumpcard ODI drivers. The keywords must be in the NET.CFG file under the line LINK DRIVER OTCETH and must be indented in by at least one space. If the keyword is not present, the default value shown will be assumed.

FRAME < frame type >

Description: Frame type used by the driver

Default: Ethernet_802.2

Accepted values: Ethernet_802.3 , Ethernet_II , Ethernet_SNAP, Ethernet_802.2

Note: *Make sure the frame type matches that used by the server.*

MEDIA <media type>

Description: Media type selected by the driver

Default: AUTO

Accepted Values: 10BASE2 or BASE2, 10BASET or BASET, AUTO

Note: *If you are using the dual media Trumpcard network PC Card, setting this keyword to 10Base2 or 10BaseT will force that media type connection only. By default, the driver will try to determine which media is connected by first trying 10BaseT, and then 10Base2.*

EXCLUSIVE

Description: Put Trumpcard in LAN only mode

Default: Multi-mode

Note: *If the Trumpcard is a multi-function card, specifying this keyword will disable the other function as long as the network driver is loaded. If the other function is already in use the driver will report an error.*

DISLINK

Description: Disable link poll mode

Default: Enable link

Note: *This keyword is used to disable the Link Test Function on a 10BaseT network connection only.*

INT <interrupt level>

Description: Set the interrupt level

Default: 5 or AUTO

Accepted values: Any valid interrupt value excluding 0, 1, 2, 6, 8, and 13

Note: *If this keyword exists, the driver will return an error when unable to operate using the specified interrupt. If the keyword does not exist, the default interrupt level will be 5 if Card Services is not present; otherwise, the first available interrupt obtained from Card Services will be used.*

MEM <memory location>

Description: Maps to 4K host memory location

Default: C8000

Note: *When Card Services is not present (the only scenario in which this keyword applies), the Trumpcard driver will require the 4K memory window in order to determine the Trumpcard's presence. If running a memory manager (such as EMM386 or QEMM), make sure to exclude the memory range used, i.e. X=C800-C8FF*

PORT <I/O port>

Description: Set the I/O port

Default: 300 or AUTO

Accepted values: Any location within a 64 byte boundary (300 and up in increments of 40, with the upper limit dictated by the individual machine)

Note: *If this keyword exists, the driver will return an error if unable to operate using the I/O port specified. If the keyword does not exist, the default I/O port will be 300 if Card Services is not present; otherwise, the first available I/O port obtained from Card Services will be used.*

NODE ADDRESS <nnnnnnnnnnnn>

Description: Station address used to override the default PROM value.

Default: None (driver uses PROM)

Accepted values: Valid hexadecimal for a Station Address according to Ethernet pattern.

PROTOCOL < named protocol > < protocol id > < frame type >

Description: Associate the named protocol with the protocol id

Default: Pre-defined Novell values

Accepted values: Refer to Novell documentation

SOCKET <socket number>

Description: Enable operation with PCMCIA socket indicated

Default: Auto

Accepted values: 1, 2, or Auto

Notes: Specifying a socket number will limit the driver to only checking that
             socket for the presence of a Trumpcard.

LOOK AHEAD SIZE <look ahead value>

Description: Set the look ahead size to pass to the protocol stack

Default: 18

Accepted value: Any even value between 18 and 256 inclusive

NET.CFG Example

An example of a possible NET.CFG file is as follows:

```
Link Driver OTCETH
    FRAME ETHERNET_802.3
    MEDIA 10BASET
    EXCLUSIVE
    DISLINK
    INT 5
    MEM D000
    PORT 300
    NODE ADDRESS 000079821660
    PROTOCOL IPX 0 ETHERNET_802.3
    LOOK AHEAD SIZE 120
    SOCKET 1
```

APPENDIX B – NDIS Keywords

The following NDIS keywords are supported by the Trumpcard NDIS drivers. The keywords must be in the PROTOCOL.INI file under the section with a DriverName = OTCETH$. If the keyword is not present the default value shown will be assumed.

MEDIA= <media type>

Description: Media type selected by the driver

Default: AUTO

Accepted Values: BASE2 , BASET, AUTO

Note: *If you are using the dual media Trumpcard network PC Card, setting this keyword to Base2 or BaseT will force that media type connection only. By default, the driver will try to determine which media is connected by first trying BaseT and then Base2.*

MEM= <memory location>

Description: Maps to 4K host memory location

Default: 0xC800

Note: *When Card Services is not present (the only scenario in which this keyword applies), the Trumpcard driver will require the 4K memory window in order to determine the Trumpcard's presence. If running a memory manager (such as EMM386 or QEMM), make sure to exclude the memory range used, i.e. X=C800-C8FF*

EXCLUSIVE

Description: Put Trumpcard in LAN only mode

Default: Multi-mode

Note: *If the Trumpcard is a multi-function card, specifying this keyword will disable the other function as long as the network driver is loaded. If the other function is already in use, the driver will report an error.*

DISLINK

Description: Disable link poll mode

Default: Enable link

Note: *This keyword is used to disable the Link Test Function on 10BaseT network connection only.*

INTERRUPT=<interrupt level>

Description: Set the interrupt level

Default: 5 or AUTO

Accepted values: Any valid interrupt value excluding 0, 1, 2, 6, 8, and 13

Note: *If this keyword exists, the driver will return an error if unable to operate using the specified interrupt. If the keyword does not exist, the default interrupt level will be 5 if Card Services is not present; otherwise the first available interrupt obtained from Card Services will be used.*

IOBASE= <I/O port>

Description: Set the I/O port

Default: 300 or AUTO

Accepted values: Any location within a 64 port boundary (300 and up in increments of 40, with the upper limit dictated by the individual machine)

Note: *If this keyword exists, the driver will return an error if unable to operate using the specified I/O port. If the keyword does not exist, the default I/O port will be 300 if Card Services is not present; otherwise the first available I/O port obtained from Card Services will be used.*

NETADDRESS= <'nnnnnnnnnnnn'>

Description: Station address used to override the default PROM value.

Default: None (driver uses PROM)

Accepted values: Valid hexadecimal for a Station Address according to Ethernet pattern.

SOCKET= <socket number>

Description: Enable operation with PCMCIA socket indicated

Default: Auto

Accepted values: 1, 2, or Auto

Note: *Specifying a socket number will limit the driver to only checking that socket for the presence of a Trumpcard.*

MAXTRANSMITS=<transmits>

Description: Maximum transmit queue blocks

Default: 4

Accepted values: Any value between 4-40 inclusive

PROTOCOL.INI Example

An example of a possible PROTOCOL.INI file follows:

```
[protocol manager]
DRIVERNAME=PROTMAN$

[stack]
DRIVERNAME=STACK$
BINDINGS=OSITECH_NIF

[ositech_nif]
DRIVERNAME=OTCETH$
MEDIA=BASET
MEM=0xD0000
EXCLUSIVE
DISLINK
INTERRUPT=5
IOBASE=0x300
NETADDRESS='000079821660'
MAXTRANSMITS=24
SOCKET=1
```

APPENDIX C − MESSAGES

WARNING MESSAGES

Warning messages will result in the network driver being loaded into memory, provided no error messages were reported. The driver will use pre-defined defaults when warnings are issued; the user will be informed of these defaults. Improper operation may result when defaults are used.

MEDIA parameter is invalid: valid values are 10BASET, 10BASE2, or AUTO; default - AUTO

SOCKET parameter is invalid: valid values are 1 or 2; default - AUTO

MEM parameter is invalid: valid range is any hexademical address; default - C8000

ERROR MESSAGES

Error messages will result in the network driver not being loaded into memory. Correct the error condition and reload the network driver.

Failed to register with Multi-Function Manager

This error only occurs if the Multi-Function Manager is being used. The network driver is unable to register a valid configuration with the Multi-Function Manager. Registration could be disallowed for any one of these reasons:

- The EXCLUSIVE keyword was used and the other function on the Trumpcard is currently active.

- The IRQ or PORT keywords are used and either the IRQ or PORT requested is unavailable.

To correct this error, make sure that the requested resources (i.e. IRQ, PORT or EXCLUSIVE) used do not conflict with other resources currently in use.

PCMCIA adapter not found

The network driver has been unable to detect a PCMCIA adapter. A valid PCMCIA adapter must be INTEL or Databook compatible. If your computer does have a PCMCIA adapter but it is not recognized by the network driver, use the Socket Services software provided by the computer manufacturer to remedy this situation.

Failed to register with Card Services

This error only occurs if Card Services is detected. The network driver was unable to register a valid configuration with Card Services. Registration could be disallowed if the IRQ or PORT keyword is used and either the IRQ or PORT requested is unavailable.

To correct this error, make sure that the requested resources i.e. IRQ, or PORT do not conflict with other resources currently in use.

Failed to obtain IRQ
Failed to release IRQ
Failed to obtain I/O Port
Failed to release I/O Port
Failed to obtain Configuration
Failed to release Configuration

These errors are related to the obtaining and releasing of resources needed to operate the network. For errors related to obtaining resources, make sure that the I/O Port and IRQ requested is available for use by the network driver. Errors related to releasing resources should not occur under normal circumstances; if these errors occur, contact technical support for assistance.

Unable to configure Trumpcard

The driver was unable to successfully configure the Trumpcard for network operation.

Only supported on PCMCIA 2.x or higher Socket/Card Services

The OTCETH.xxx network driver will only support PCMCIA Socket and Card Services software that comply with PCMCIA version 2.x or higher. Contact your computer manufacturer or dealer for more details on how to obtain a current version.

The expected Tuple not found

The network driver has been unable to locate configuration information needed to operate the network. Run the diagnostic software accompanying the Trumpcard to correct this situation.

Must be an AT (.286) or higher system

The network driver requires that the computer, as a minimum, is a PC AT (80286) or higher.

Hardware not responding

Run the diagnostic software accompanying the Trumpcard PC Card to verify that the hardware is functioning properly.

No Media Cable Connected

The network driver was instructed to auto detect the media cable connected, but no media connection was detected. If a media connection does exist, run the diagnostics accompanying the Trumpcard to verify that the hardware is functioning properly.

ODI Specific Error Messages

MLID could not be unloaded, the operation was aborted
MLID could not register Protocol ID
This version of LSL is not supported
The frame type is already activated for frame
The node address was incorrectly specified in NET.CFG
An invalid keyword was specified in NET.CFG on line nnn
The frame type specified in the NET.CFG is not supported
The LSL is not loaded
The LSL has no more room for a board using Frame xxxxxxxxxx

The above error messages are specific to the Trumpcard Ethernet ODI drivers. The error messages are self explanitory, and are only shown for completeness.

NDIS Specific Error Messages

Media Parameter is Invalid
Socket Parameter is Invalid
Mem Parameter is Invalid
NetAddress parameter is invalid
MaxTransmit parameter is invalid
Can not establish a unique name for driver

The above error messages are specific to the Trumpcard Ethernet NDIS drivers. The error messages are self explanitory, and are only shown for completeness.