

## **Chapter 6**

### **LAN DRIVER**

For Concerto I (MS-5150 version 1.X), please refer to W89C940 Ethernet LAN Driver and for Concerto II (MS-5150 version 2.X) refer to Intel®82558 Ethernet LAN Driver.

#### **6.1 W89C940 Ethernet LAN Driver (Concerto I)**

##### **6.1-1 Overview**

The W89C940F ELANC-PCI (Twisted-pair Ether-LAN Controller with PCI Interface) integrates a PC/AT® PCI bus interface logic into a single chip. The ELANC-PCI provides an easy way of implementing the interface between an IEEE 802.3-compatible Ethernet® and a personal computer. In addition, a fast DMA function is provided to improve performance in packet transmission and reception.

##### **Features**

- Fully Compatible with IEEE 802.3 standard
- Software compatible with Novell®NE2000™
- Fast DMA operation to enhance network access performance
- UTP interface available
- 32K x 8-20 SRAM Interface provided
- IO prefetch function available
- EEPROM on-board programming function
- LED display for network link/activity status
- Signature register for device identification

## 6.1-2 W89C940 LAN Driver Setup

### Windows®95

Insert the provided CD-ROM into the CD-ROM drive. The CD-ROM will autorun. Click the button for installing LAN driver. Wait for the setup to complete.

### Windows®NT 4.0

- Step 1:** Insert the Network CD-Title Driver disk into the CD-ROM drive:
- Step 2:** Copy all the files in the **Net** directory of the CD into the hard disk.
- Step 3:** Go to **Network of Control Panel**.
- Step 4:** Click the **Add** button in the **Network** Dialog Box.
- Step 5:** From the **Network** dialog box, select **Adapter** and click the **Add** button.
- Step 6:** In the **Select Network Adapters** dialog box, click the **Have Disk...** button.
- Step 7:** Click **Browse** and choose the directory in the hard disk that contains **W940ND.INF**, then click **OK**.
- Step 8:** A dialog box will show **W89C940 PCI Ethernet Adapter**, press **ENTER**.
- Step 9:** Follow screen instructions to complete the process.

### 6.1-3 How to install the Novell® RPL Server (Boot ROM)

1. You must create a remote boot diskette. The files on this boot diskette, for example, are the following:

COMMAND	COM	
IO	SYS	attrib -s -h io.sys
MSDOS	SYS	attrib -s -h msdos.sys
LSL	COM	
940-OD	COM	
IPXODI	COM	
NETX	EXE	
AUTOEXEC	BAT	
CONFIG	SYS	

The AUTOEXEC.BAT file contains these lines :

```
PATH H:\LOGIN;  
SET COMSPEC=H:\LOGIN\COMMAND.COM  
DOSKEY  
LSL  
940-OD  
IPXODI  
NETX
```

The CONFIG.SYS file contains these lines :

```
DEVICE=A:\HIMEM.SYS  
STACKS=9,256  
DOS=HIGH,UMB  
FILES=30  
BUFFERS=30  
LASTDRIVE=G  
FCBS=16,8
```

2. Boot a workstation with at least one floppy disk drive, and log in to the server as SUPERVISOR.
3. Change directory to SYS:SYSTEM
4. With the DOS boot diskette in driver A: execute the DOSGEN utility. This creates a DOS boot image file named NET\$DOS.SYS.
5. Copy NET\$DOS.SYS to the SYS:LOGIN directory.
6. Copy RBOOT.RPL, ETHER.RPL to the SYS:LOGIN directory.  
Copy a:\Autoexec.bat into the SYS: Login
7. Copy RPL.NLM, 940-OD.LAN, ETHERTSM.NLM, MSM31X.NLM to the SYS:SYSTEM directory.

**Note:** 1. It depends on file server's version.

In the RPL developer's kit,

for Netware 3.11, use .\RPL\NLM\311\RPL.NLM;

for Netware 3.12/4.x use .\RPL\NLM\40\RPL.NLM;

**Note:** 2. Ethertsm.nlm and Msm31x.nlm must be a new version, or can be found from our software kit \ODI4.X\SERVER\INSTALL

8. Edit the AUTOEXEC.NCF file in the SYS:SYSTEM directory.

For example: (IF W89C940 CARD IS USED ON SERVER)

```
file server name WINBOND®
ipx internal net 831123

load 940-OD name=W940_1 frame=ETHERNET_802.2
load 940-OD name=W940_2 frame=ETHERNET_II
load 940-OD name=W940_3 frame=ETHERNET_802.3
load 940-OD name=W940_4 frame=ETHERNET_Snap

bind ipx to W940_1 net=21
bind ipx to W940_2 net=22
bind ipx to W940_3 net=23
bind ipx to W940_4 net=24

; _____ for RPL file server _____
load rpl
bind rpl to W940_1
; _____ for RPL file server _____

mount all

Set immediate purge of deleted files=on
load monitor
```

9. Shutdown the file server, and reboot it.
10. Configure the W89C940 to “Boot ROM Enable”.
11. Reboot the workstation.
12. Now, when the file server is running, the workstation equipped with Boot ROM on the W89C940 card will be attached to the file server without any floppy.

## 6.2 Intel® Fast Ethernet LAN Driver (Concerto II)

### 6.2-1 Overview

The 82558 is a sophisticated 32-bit PCI component, with enhanced scatter-gather bus mastering capabilities. Its true 32-bit architecture enables it to perform high speed data transfers on the PCI bus using four DMA channels.

#### **Features**

- IEEE 802.3/802.3u 10BASE-T and 100BASE-TX compatible
- Glueless 32-bit PCI bus master interface
- Backwards software compatible to the 82557
- Internal transmit and receive FIFOs (3 kbytes each)
- Back-to-back transmit at 100 Mbps within minimum IFS
- EEPROM support for configuration and customized feature selection
- Advanced configuration and Power Interface Specification, Revision 1.0, and PCI Power Management Specification, Revision 1.0 compliant
- Remote Wake Up (Magic Packet\*) support in APM and ACPI modes
- ACPI “interesting” packet wake support in D0 to D3<sub>cold</sub> low power states
- IEEE 802.3u Auto-Negotiation support for 10BASE-T and 100BASE-TX
- Full or half duplex capable at 10 or 100 Mbps
- IEEE 802.3x flow control support

## 6.2-2 Intel® 82558 LAN Driver Setup

### Windows®95

Insert the provided CD-ROM into the CD-ROM drive. The CD-ROM will autorun. Click the button for installing LAN driver. Wait for the setup to complete.

### Windows®NT 4.0

- Step 1:** Insert the Network CD-Title Driver disk into the CD-ROM drive:
- Step 2:** Copy all the files in the **E100B** directory of the CD into the hard disk.
- Step 3:** Go to **Network of Control Panel**.
- Step 4:** Click the **Add** button in the **Network** Dialog Box.
- Step 5:** From the **Network** dialog box, select **Adapter** and click the **Add** button.
- Step 6:** In the **Select Network Adapters** dialog box, click the **Have Disk...** button.
- Step 7:** Click **Browse** and choose directory in the hard disk that contains **OEMSETUP.INF**.
- Step 8:** A dialog box will show **Intel® EtherExpress Pro Adapter**. Press **ENTER**.
- Step 9:** Follow screen instructions to complete the process.