DP83820 GigMAC DOS ODI Driver Release Notes

Version 2.03 – Release 1.6a

9/18/2002

Read This Document Before Attempting To Install Or Use This Product!

This document contains information about factors that must be considered before, during, and after installation.

General Notice:

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National Semiconductor DP83820 Gigabit Ethernet Adapter

1.0 Introduction

This document presents information to users about National Semiconductor's DP83820 Gigabit Ethernet adapter and the relevant DOS ODI driver version 2.03 for NetWare client system.

2.0 Product Overview

The DP83820 is a PCI Gigabit Ethernet adapter from National Semiconductor which supports a 33/66MHz, 32/64 bit PCI 2.1/2.2 bus interface. It complies with the emerging 1000 Mbps Ethernet 802.3z specification and supports full duplex operation.

Other features include:

- Maximized PCI efficiency and performance
- Pause Frames
- Checksum Offloading
- Jumbo Frames

The driver for this adapter on NetWare is designed to be a NIC driver for processing Ethernet data packets.

3.0 Installation

3.1 Release Media

The release media consists of the National Semiconductor's DP83820 GigMAC DOS ODI driver available on CD and the National Semiconductor website.

3.2 Installation Procedure

This section describes the installation of the adapter and the driver software for making the adapter functional on Netware client platforms.

3.2.1 Hardware Installation

This section describes the installation of the GigMAC demo card into a personal computer (PC). To install the card, you need:

- GigMAC demo card
- PC with an available PCI slot
- Screwdriver to open the PC and secure the GigMAC demo card
- Category 5 twisted-pair RJ-45 cable
- Wrist strap
- Blank, formatted floppy disk

Installing the card consists of one optional and three required stages: Copying the Driver to a Floppy Disk (optional), Inserting the Card, Connecting the Network, and Installing the Driver. If the PC into which you are installing the GigMAC demo card is equipped with a CD-ROM, you may skip the first stage and begin with stage II.

Inserting the Card

The second stage in the installation sequence is inserting the card into the PC. For this stage you will need the GigMAC demo card and the screwdriver. Unplug the PC before opening it to avoid electrocution. Be sure to ground yourself before handling the GigMAC card to avoid ElectroStatic Discharge (ESD) damage to the card.

1. Shutdown the PC, and disconnect the power cord.

2. Open the chassis of the PC.

3. Choose an unused PCI slot and remove its metal bracket by loosening the screw on the inside. You will no longer need this metal bracket as the GigMAC demo card has its own. You will need the screw, however.

4. Remove the GigMAC demo card from the ESD-safe packaging. *Warning: Static charge from your body can permanently damage the GigMAC demo card. Do not handle the card without first electrically grounding yourself via wrist strap or by touching a large piece of metal.*

5. Insert the GigMAC demo card into the empty PCI slot in the PC. Orient the card so that the RJ-45 connector points out of the computer (See Figure 2).
Warning: The card may fit backwards (with the RJ-45 pointing in) into the PCI slot. Starting the computer with the card inserted backwards may damage the card and/or the PC.

6. When you are certain the card is oriented correctly, press firmly on the card to ensure that it is completely seated in the PCI slot. Secure the GigMAC demo card using the screw from step 3.

7. Close the computer, and reconnect the power cord.

Connecting the Network

The third stage in the installation sequence is connecting the GigMAC demo card to the network. In this stage, you will need only the twisted-pair Category 5 network cable.
After you have inserted the card and closed the PC, connect one end of the twisted-pair cable to the RJ-45 connector on the GigMAC demo card, and the other end to another PC or a network hub or switch (see Figure 4). When connecting the card to another PC, the cable may be *crossover*, meaning that pins 1 and 2 must be swapped with pins 3 and 6, respectively, between the two ends of the cable. A crossover cable should not be used when connecting the GigMAC demo card to a network hub or switch. The difference between a crossover and non-crossover ("straight") cable is shown

The next time you turn on the PC, one of the two green link lights on the GigMAC demo card should become illuminated almost immediately. This signifies that the card has established link with the device at the other end of the cable and is ready to send and receive data.

3.2.2 Software Installation and Configuration

The fourth stage in the installation sequence is installing the driver for the GigMAC demo card. The following subsections describe the procedure for installing the driver for NETWARE client platforms.

DOS ODI Driver Installation

Follow this sequence for installation under NETWARE client platform.
Install the NIC into a PCI slot of a NetWare client and note the slot number for driver configuration later (slots are generally numbered top/front to bottom/back of the machine).
To install the driver, copy the dp83820.com & dp83820.ins & net.cfg files onto a floppy disk.

The NETWARE Client installation procedure will copy the necessary files to a specific directory on the workstation and create or modify existing configuration files to fit your specific needs. The installation utility INSTALL.EXE is located on NETWARE's "Workstation for DOS" disk. The INSTALL.EXE program is also found on NetWare 4.x server in the PUBLIC\CLIENT\ DOSWIN directory. NetWare 3.12 does not automatically create this client installation directory on the server during installation.

General Installation Procedure:

1. Run INSTALL.EXE from the NETWARE "Workstation for DOS" Disk.

2. Specify the directory on the workstation that you want to install the NetWare client software. The default directory is C:\NWCLIENT. You can specify another directory name if you desire.

3. Following the installation prompt to select the proper option.

4. Select "OTHER DRIVERS" from the bottom of the list of adapters in the NetWare client software installation. You will be prompted to insert the driver disk into drive A: and specify the proper path to the dp83820.com, dp83820.ins and net.cfg files.

5. Select “NSC DP83820 10/100/1000 Mb/s PCI Ethernet Adapter” from the list of drivers, specify the proper Slot number (1st card is 1, 2nd card is 2, … etc.), any other options you want to specify and the frame type(s) you want to use. The frame type you selected should match the frame type loaded on your NetWare server (Frame Ethernet_802.2 is default).

   P.S.: Please refer to net.cfg file for all supported parameters of the National Semiconductor’s DP83820 GigMAC DOS ODI driver.

6. Follow the installation prompt to complete the installation.

Manual Installation Procedure:

1. Create a NetWare client software directory (example, C:\NWCLIENT) on workstation.

2. Copy the latest version LSL.COM, IPXODI.COM, VLM.EXE and all .VLM modules files to this directory.

3. Copy the National Semiconductor’s DP83820 GigMAC DOS ODI driver (dp83820.com) and net.cfg files to this directory.

4. Configure the appropriate driver parameters in net.cfg file if you desire.

5. Check the CONFIG.SYS file on NetWare client includes the following lines for VLM shell DOS Requester.

   FILES=25
   BUFFERS=25
   LASTDRIVE=Z

6. Reboot to DOS prompt and run the following commands at the DOS prompt to connect to the Netware server.

   LSL
   DP83820
   IPXODI
   VLM
   F:
   LOGIN ADMIN

NET.CFG file sample:

NOTE: NET.CFG is position sensitive, so be careful to indent lines with one space or one tab as shown below in the following example.

```
Link Support
    Buffers 8 1514

Link Driver DP83820
;       SLOT 1              ;;Select Slot Number (FIRST Board)
;       NWAY                ;;Nway Autodetect Media Mode (Default)
;       N100F               ;;Forced 100M Full-Duplex Nway Capability
;       N100H               ;;Forced 100M Half-Duplex Nway Capability
;       N10F                ;;Forced 10M Full-Duplex Nway Capability
;       N10H                ;;Forced 10M Half-Duplex Nway Capability
;       100F                ;;Forced 100M Full-Duplex Media Mode
;       100H                ;;Forced 100M Half-Duplex Media Mode
;       10F                 ;;Forced 10M Full-Duplex Media Mode
;       10H                 ;;Forced 10M Half-Duplex Media Mode
;       FIBER_FORCE         ;;Support GigMAC Fiber forced Mode
;       NCMODE              ;;Support Non-Compliant GigaPHY Mode
;       NODE ADDRESS 0223456789AB     ;;Set Override Node Address

;=================================================================
;NOTICE:
;  1. IEEE 802.3u standard does NOT support 1000Mbps forced media mode,
;     so the driver does NOT support 1000Mbps forced media mode.
;  2. 'NCMODE' parameter is used when connected with Non-Compliant GigaPHY
;     (exmp. Broadcom BCM5400).
;  3. 'FIBER_FORCE' parameter is used to force TBI 1000Mbps Fiber media mode
;     when connected with early TBI Fiber forced-mode devices.
;     (This parameter is only valid for GigMAC Fiber card.)
;=================================================================

       FRAME ETHERNET_802.2
       FRAME ETHERNET_802.3
       FRAME ETHERNET_II
       FRAME ETHERNET_SNAP

;       PROTOCOL IPX E0 ETHERNET_802.2
;       PROTOCOL IPX 0 ETHERNET_802.3
;       PROTOCOL IPX 8137 ETHERNET_II
;       PROTOCOL IPX 8137 ETHERNET_SNAP

;Link Driver DP83820
;       SLOT 2              ;;Select Slot Number (SECONDARY Board)
;
;       FRAME ETHERNET_802.2
;       FRAME ETHERNET_802.3
;       FRAME ETHERNET_II
;       FRAME ETHERNET_SNAP

NetWare DOS Requester
       FIRST NETWORK DRIVE = F
       NETWARE PROTOCOL = NDS BIND
       MAX IPG = 0
```

Troubleshooting Tips:

1. Make sure the NetWare client loaded frame type was supported on Netware server system.

2. Check the CONFIG.SYS file on NetWare client includes the following lines for VLM shell DOS Requester.

   FILES=25
   BUFFERS=25
   LASTDRIVE=Z

3. Verify that you have FIRST NETWORK DRIVE = F in the NET.CFG file under the Netware DOS Requester section. (Refer to net.cfg file)

3.2.3 Errata

version 2.03 includes fixes to CRC and lost packets seen under extended testing.

4.0 Product Documentation

This document, *National Semiconductor Corp DP83820 Gigabit Ethernet Adapter Driver Release Notes*, provides detailed information about installing the National Semiconductor Corp DP83820 Gigabit Ethernet Adapter and Driver software.

5.0 Problem Reporting

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