

# TABLE OF CONTENTS

Package Contents	1
Chapter 1 Introduction	2
1.1 General Description	2
1.2 Features & Benefits	4
Chapter 2 Installation	6
2.1 Hardware Installation	6
2.11 Finding PCMCIA Slot	6
2.12 Hardware Installation	7
2.2 Software Configuration and Installation	13
2.21 General Program Loading Procedure	14
2.22 Sample Procedure	15
Appendices	18
Appendix A Technical Specification	18
Appendix B Socket Services and Card Services	19
Appendix C Troubleshooting	27

## Package Contents

### Unpack and Inspect

Carefully unpack the PCMCIA Ethernet card (The Product) package and carefully remove the contents.

The package should contain the following items:

- \* One base unit
- \* One media coupler
- \* One T-connector
- \* One 3.5" software driver diskette
- \* One user's manual

The media coupler has both BNC & TP network connector's applicable to your network's type of media.

Check also for all possible damage or missing item. If any damage or missing item is found, contact your dealer for replacement or completion.

# Chapter 1 Introduction

## 1.1 General Description

The PCMCIA Ethernet card is a credit card size Ethernet adapter that connects a notebook PC to an IEEE 802.3 standard Ethernet network. The notebook PC must be equipped with a PCMCIA (PC Memory Card International Association) slot which is a standard feature in most notebook PCs.

This incredibly small and thin Ethernet adapter (85 by 54mm) is only 5 mm thick. It houses all the essential network processing hardware and a 68-pin I/O interface with the notebook PC. It is switchless and is installed by a simple plug into the notebook PC's PCMCIA slot.

It comes with a base unit and a media coupler. The media coupler is to be attached to the base unit with a 15-pin connector.

The base unit contains the Ethernet controller, interface to the notebook PC, EEPROM for configuration storage and RAM data buffer. The media coupler contains the built-in transceiver(s) and network interface.

Figure 1.1 shows the base unit and the media coupler with 2-in-1



PCMCIA  
Ethernet Adapter  
(base unit)



Media Coupler

Figure 1.1

## 1.2 Features & Benefits

The following summarizes the features of the PCMCIA Ethernet card :

- \* Compliance with IEEE802.3 10Base2 and 10BaseT Ethernet standards
- \* Compliance with PCMCIA Release 2 type II and JEIDA V4.X Standard
- \* NE2000 driver compatible
- \* Auto sensing media type ( BNC or UTP)
- \* Being able to do hot swap from the PCMCIA socket
- \* Built-in 16KB RAM data buffer to increase data throughput
- \* Switchless installation, automatic configuration by driver software
- \* Minimal power consumption

- \* Support both thin 10Base2 coaxial and 10BaseT UTP cables

- \* Software support for Novell NetWare, Microsoft LAN Manager, Windows 95, Windows NT and FTP TCP/IP

- \* 10Mbps transfer rate

- \* Supports 8 I/O Base and 8 IRQ

- \* Supports 300M for BNC cabling

# Chapter 2 Installation

## 2.1 Hardware Installation

### 2.1.1 Finding PCMCIA Slot

Check to see if your notebook PC has a PCMCIA slot. The PCMCIA slot is a 68-pin connector that looks like the one in the following Figure 2.1

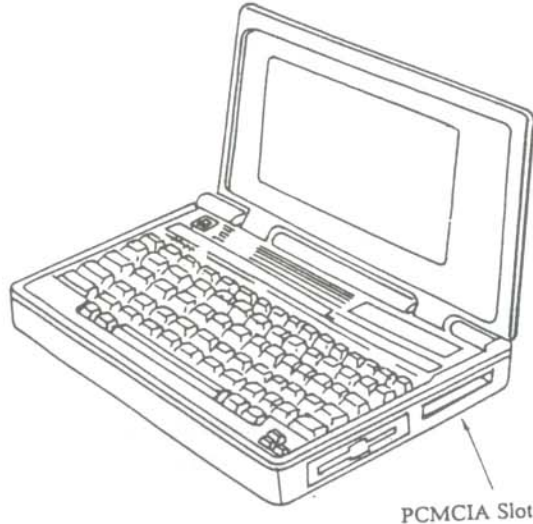


Figure 2.1

### 2.1.2 Hardware Installation

Following this procedure to install the PCMCIA Ethernet card:

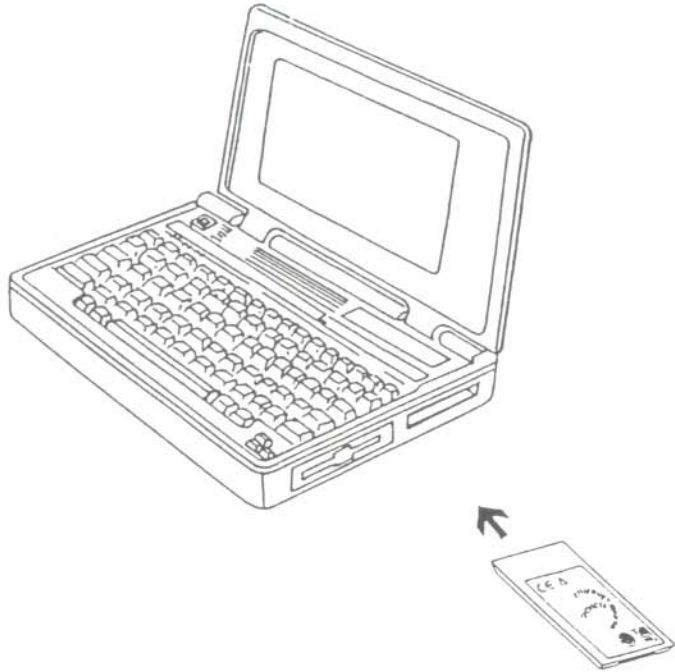
Step 1 : Turn OFF the power of the notebook PC and unplug all power cords.

Step 2 : Turn OFF the power of all devices connected to the notebook PC and disconnect all connection cables. You may want to take note of the original connections of the devices to facilitate reconnection after the installation of the PCMCIA LAN is complete.

Step 3 : If you already have another card in the PCMCIA slot, carefully remove it from the slot.

Step 4 : With the 68-pin connector on the base unit facing the PCMCIA slot, slide the base unit all the way into the PCMCIA slot.

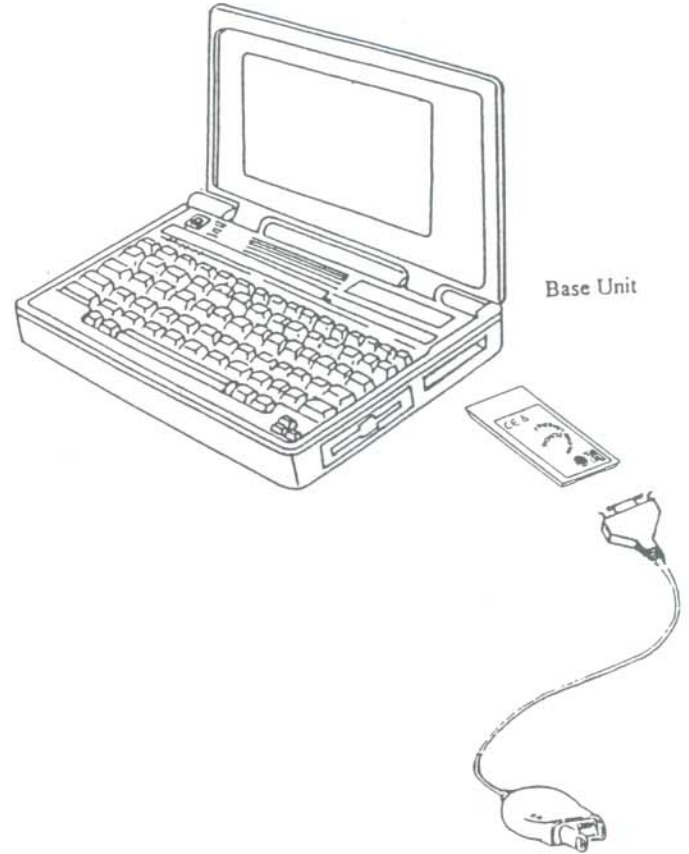
(See Figure 2.2)



Slide base unit all the way into PCMCIA slot

Figure 2.2

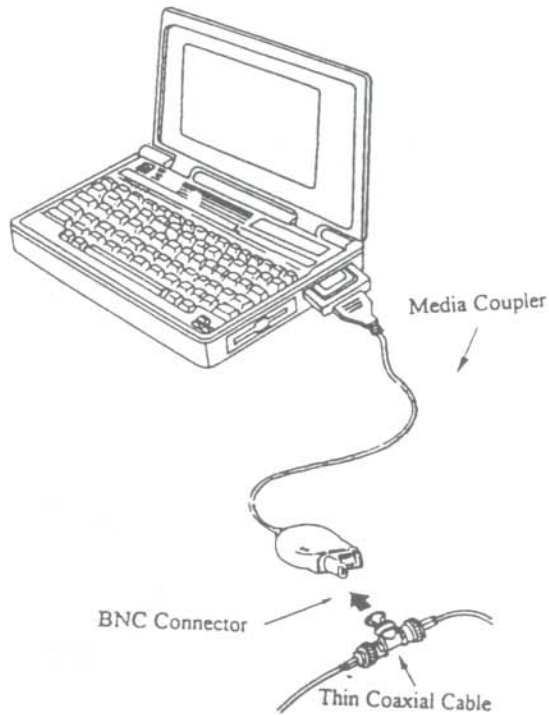
Step 5 : Plug the media coupler to the 15-pin connector on the base unit (See Figure 2.3)



Plug media coupler to base unit  
Figure 2.3

Step 6 : Connect the network cable to the media coupler as follows --

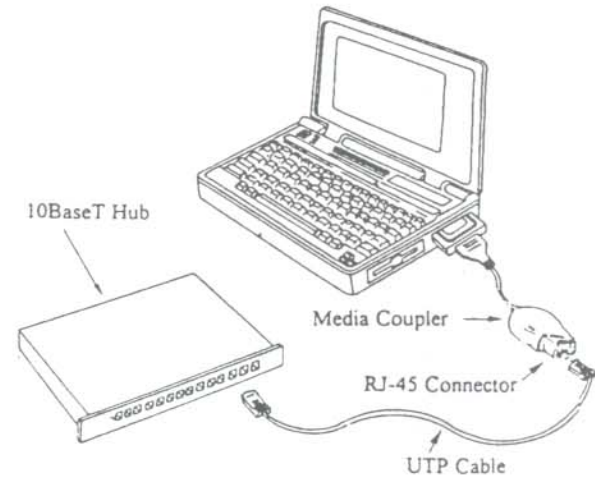
A). If your network uses the thin coaxial cable, connect this cable to the BNC connector of the media coupler via a T-connector. If there is any open end on the T-connector, terminate it with a 50-ohm terminator. (See Figure 2.4)



Connect thin coaxial cable to media coupler

Figure 2.4

B). If your network uses the 10BaseT unshielded twisted-pair (UTP) cable, connect one end of this cable to the RJ-45 connector of the media coupler, and the other end of this cable to a 10BaseT Hub.



Connect UTP cable to media coupler and hub

Figure 2.5

Step 7 : Plug the power cord to your notebook PC turn on its power.

Step 8 : In case of using UTP cable, you should observe the LED labeled link on the media coupler. This LED should turn ON and remain static green. If not using UTP or coaxial cable, the red LED should be turn on and remain.

## **2.2 Software Configuration and Installation**

Configuration for the PCMCIA card is automatic; the PC host automatically detects the available resources and allocates them for use by a PCMCIA card. Exceptions are with older versions of notebooks that are equipped with PCMCIA slot hardware but no Socket Service or Card Service. To provide for these exceptions, we have written programs that interface with the hardware and that allow you to specify configuration parameters, including the IRQ line, base I/O address, and others. These parameters can be specified when you load in the programs to activate the PCMCIA card.

Software Installation refers to the procedure that must be performed to get your PC to run a network operating system with the PCMCIA Ethernet card. We provide driver programs on the diskette that accompanies your card to let you run a wide variety of network operating systems. A complete list of driver programs and their installation instructions are on the diskette.

Refer to the README file on the diskette for

complete information.

## **2.21 General Program Loading Procedure**

The following provides only a guideline to load the Socket Services, Card Services and the Client Driver (where required). For the exact procedures, refer to the documents concerning the PCMCIA software of your system, and the README file on the diskette of your Ethernet card.

A)For computers that provide Socket Services and Card Services in the form of device drivers

1. Insert the PCMCIA Ethernet card in a slot.
2. Load a Client Driver program (Socket/Card Service providers).
3. Load the Enable program (Socket/Card Service providers or PCCARDGO.EXE)
4. Load a MAC-layer driver program for your network operating system.

B)For computers that do not have Socket Services and Card Services :

- 1.Insert the PCMCIA Ethernet card in a slot.
- 2.Execute the PCCARDGO.EXE program. This program allows you specify parameters for system resource allocation (I/O port address, IRQ,etc.)
- 3.Load a MAC-layer driver program for your network operating system.

Note:The PCCARDGO.EXE does not include the Socket/Card Services. It directly enables the PCMCIA Ethernet card, instead of going through these Services. Without the functions of Socket/Card Services, the card must be enabled every time when it is plugged in the systems.

Complete instructions on how to use the PCCARDGO.EXE program are provided on your PCMCIA Ethernet card's diskette. Refer to its README file for the details.

## **2.22 Sample Procedure**

1. For users who installed EMM386.EXE in their config.sys, please exclude memory address D000-DFFF from the system. This is reserved for use by the PCMCIA Ethernet card.

[ Example ]

device=emm386.exe noems x=d000-dfff

2. For users who installed Card and Socket Services device driver in their config.sys, please run PCCARDGO.EXE after these device drivers.

[ SystemSoft CardSoft V3.1 ]

device=c:\cardsoft\ss365sl.exe

device=c:\cardsoft\cs.exe

device=c:\cardsoft\csalloc.exe

device=pccardgo.exe

[ Phoenix PCM+ V3.0 ]

device=c:\pcm3\cnfignam.exe /setup-default

device=c:\pcm3\pcmss.exe

device=c:\pcm3\pcmcs.exe

device=c:\pcm3\pcmrman.sys

device=c:\pcm3\pcmscd.exe

device=pccardgo.exe

[ Databook CardTalk V3.02 ]

device=c:\cardtalk\socket.sys

device=c:\cardtalk\ctalkcs.exe

device=c:\cardtalk\cardtalk.sys

device=pccardgo.exe

3. For users who used Direct-Enabler in their autoexec.bat, please run PCCARDGO.EXE.

[ Example ]

PCCARDGO.EXE

Note: Please refer to PCCARDGO.EXE /? for the details.

## Appendix A

### Technical Specification

Topology	: Star/Bus
Connector Supported	: RJ45, BNC
Standard	: IEEE 802.3 10Base-T, 10Base-2
Transmission Rate	: 10Mbps
Hardware	: IBM PC/XT/AT and compatibles
IRQ Line	: 2, 3, 4, 5,10, 11, 12, 15
I/O Address	: 260H, 280H, 2A0H, 2C0H, 300H, 320H, 340H, 360H
Software	: Novell NetWare 3.x, 4.x, NDIS driver for Microsoft LAN Manager and Windows 95, Windows NT, Packet driver for TCP/IP
Temperature	: 0°C to 55°C (Operating)
Humidity	: 10% to 90%(Non-condensing)
Certification	: FCC Part 15 Class A CE mark

## Appendix B

### Socket Services and Card Services

The key elements of the PCMCIA software architecture are the Socket Services and the Card Services. Socket services comprise the hardware-dependent software that controls the physical PCMCIA slots ( also called "sockets") controller hardware. They are BIOS-level software interface that provides a way to access the PCMCIA slots of a computer. Socket Services, identify how many slots are in your computer and detect the insertion or removal of a PCMCIA card when the computer is power ON. Socket Services are part of the PCMCIA 2.0 specification and interfaces with Card Services.

Card Services are hardware-independent and are the software management interface that automatically allocates the system resources, such as memory and IRQ, once Socket Services detect that a PCMCIA card has been inserted in a slot. Card Services also release these resources when the PCMCIA card is removed. In addition, Card Services provide an interface to higher level software to load needed hardware drivers.

Some vendors subdivide Card Services to Card Services and Client Driver. Their function assignments are as follows. Card Service allows "hot swap" of PCMCIA cards, manages their competition for system resources and manages the PCMCIA card resources. Client Driver communicates with PCMCIA hardware device drivers (such as the Ethernet PCMCIA MAC-layer driver programs), registers with Card Services and initializes the PCMCIA card upon its insertion in the slot. Generally, a Client Driver is only necessary for PCMCIA cards such as network adapters, which may require certain unique hardware resource parameters such as I/O port address and IRQ numbers.

Client Drivers may not be required for such PCMCIA cards as RAM cards or disk cards, which use universal hardware resource parameters understood by the Card Services.

Figure B-1 illustrates the general architecture of PCMCIA system.

Figure B-2 shows the PCMCIA architecture of SystemSoft's CardSoft. SystemSoft, a Socket Services and Card Services provider, also sub-divides its Card Services to include Client Driver programs CS.EXE, which can be used with the PCMCIA Ethernet card.

Figure B-3 shows the PCMCIA architecture of Phoenix's PCM+. Phoenix, a Socket Services and Card Services provider, sub-divides its Card Services to include a Client Driver program PCMSCD.EXE, which can be used with the PCMCIA Ethernet card.

Figure B-4 shows the PCMCIA architecture of DataBook's CardTalk. The Card Services are called "Resources Manager". Client Driver program PCCARDGO.EXE used to let a MAC-layer driver program communicate with the "Resource Manager".

### Architecture of PCMCIA System

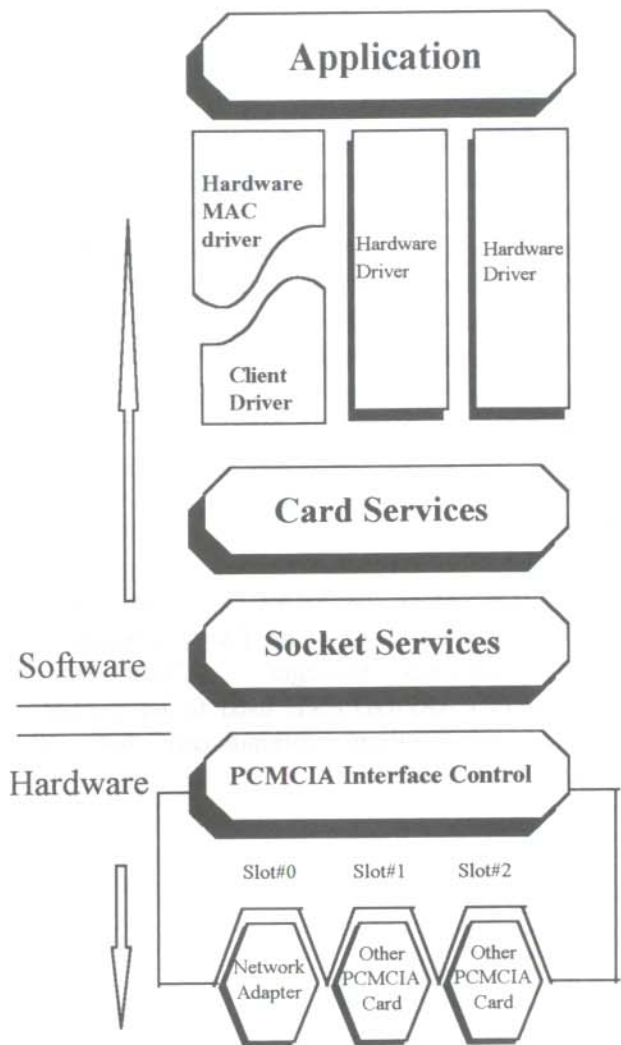


Figure B-1

### SystemSoft CardSoft

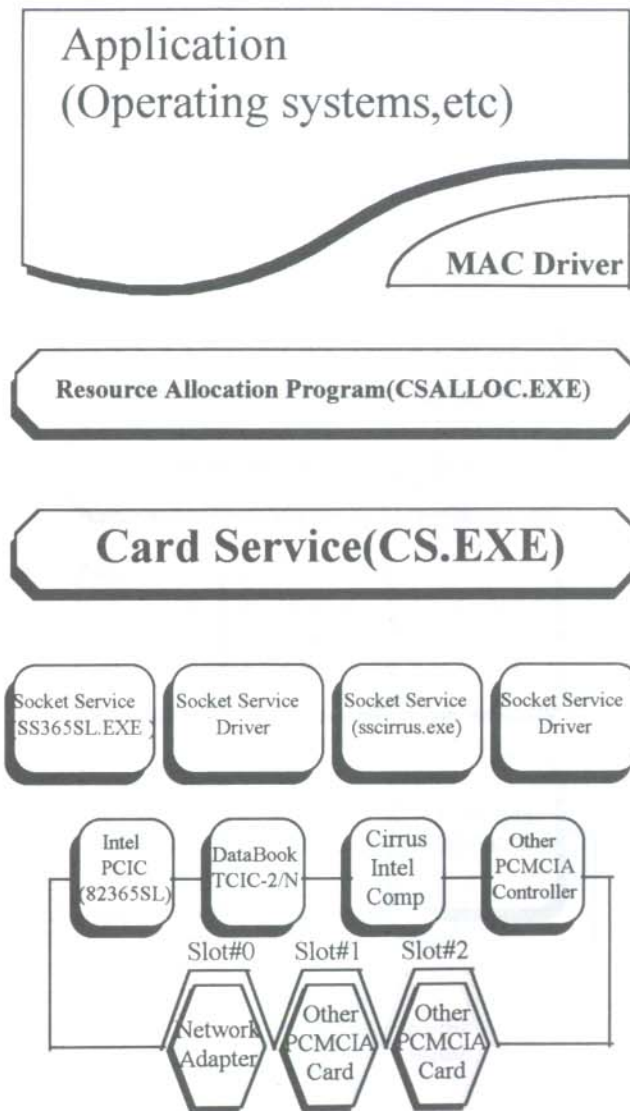


Figure B-2

## Phoenix PCM+

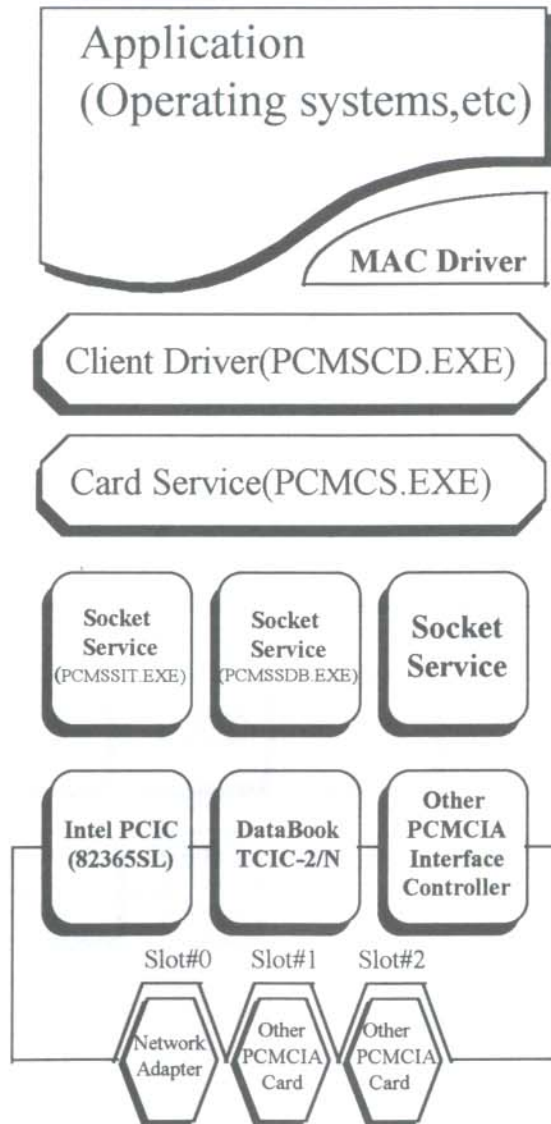


Figure B-3

## DataBook CardTalk

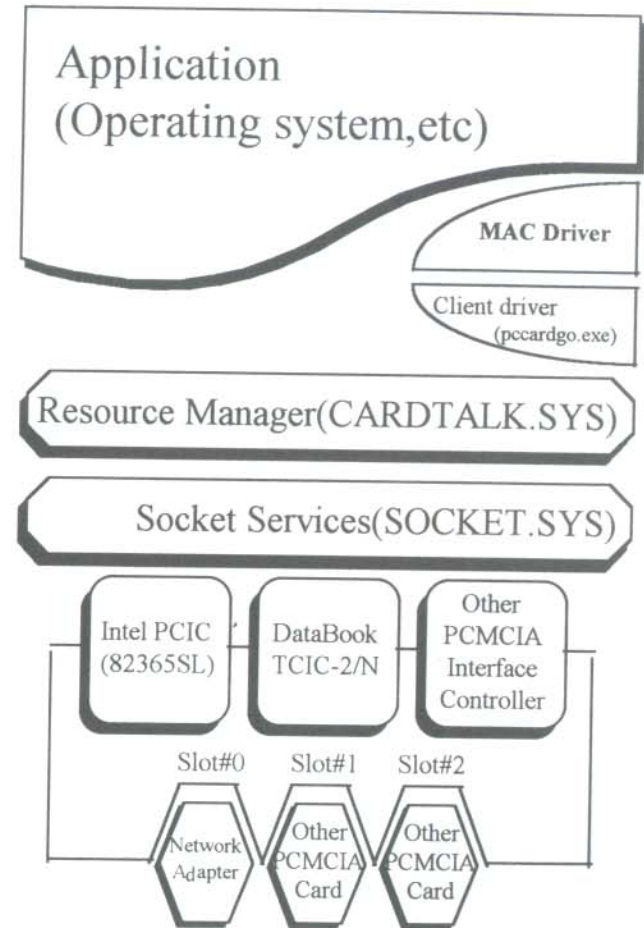


Figure B-4

Some early version of notebook and handheld computers are equipped with PCMCIA slot but no Socket Services or Card Services. PCMCIA vendors, therefore, must provide a means to directly control the PCMCIA slot controller hardware of the computer and allocate system resource.

Later versions of notebook and handheld computers with PCMCIA slots usually incorporate Socket Services and Card Services in the form of either device driver programs or built-in function in the computer system's BIOS.

The current version of PCCARDGO.EXE enables the following PCMCIA controllers

- \* Intel 82365SL controller
- \* Intel 82365SL - compatible controllers
- \* Toshiba ICCNT controller
- \* DataBook TCIC-2/N controller

## Appendix C

### Troubleshooting

These guidelines give you tips on how to deal with notebook computer that is unable to communicate with the network. If the problems remain unsolved, contact your dealer for assistance.

1. Unshielded twisted-pair connection results to card failure, LINK LED indicator if off. The possible reason for this symptom is a invalid twisted-pair link.

solving (1) Check the RJ-45 connection for loose cabling.

(2) Check for wrong RJ-45 pin assignments.

2. Coaxial connection results to card failure, ACTIVITY LED indicator flashing on off. The possible reason for this symptom is a bad coaxial cable link.

solving (1) Check BNC connection for loose cabling.

(2) See to it that both ends of the network segment are properly terminated.

Terminate open end of the network segment with a 50-ohm terminator.

3. Ethernet PCMCIA card failure, suddenly can't log into network . There possible reasons for this symptom may be a bad connection, or Ethernet PCMCIA card not properly installed in PCMCIA slot, or host PC's slot defective.

- solving
- (1) Check cabling for loose connection or wrong pin assignment if you are using the RJ-45 connection.
  - (2) Check if the card is properly inserted in the PCMCIA slot, it may have been accidentally loosened.
  - (3) Install the Ethernet PCMCIA card in another PC, or install it on another slot.If problem is eliminated, then the original PC's slot is defective. Contact your PC vendor for assistance.

4. Card failure, after configuration. The possible reason for this symptom is the configuration conflict.

- solving
- (1) Check I/O and IRQ for possible setting conflicts. Make sure they do not conflict with other devices.

## **FCC Warning**

This equipment complies 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 when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used properly, may cause harmful interference to radio communications. Operation of the equipment in a residential area is likely to cause harmful interference.

## **Trademarks**

Copyright 1995-1996 by the manufacturer of The Product. No part of this manual may be reproduced, transcribed, stored in a retrieval system, translated into any language or computer language without the prior written consent of the manufacturer.

Other brand and product names are trademarks and/or registered trademarks of their respective companies.