FCC ID: AO9-DE100

FCC NOTICE: This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B 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.

Any changes or modifications made to this equipment may void the user's authority to operate this equipment.

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:

– Re-orient or relocate the receiving antenna

– Increase the separation between the equipment and 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/TV technician for help

The use of unshielded Ethernet cable on ThickWire ports with this equipment is prohibited due to non-compliance with FCC regulations for a Class B computing device pursuant to Part 15 of FCC Rules.

BENUTZERHINWEIS: Das DEC EtherWORKS *LC*-Modul in Verbindung mit IBM Personalcomputersystemem entsprechen den Funkentstöranforderungen der DBP-Verfugung 523/69 und VDE0871 Grenzwertklasse B.

This document was prepared using VAX DOCUMENT, Version 2.1.

DEC EtherWORKS *LC* Ethernet Controller

Owner's Manual

Order Number: EK-DE100-OM. D01

Digital Equipment Corporation
Maynard, Massachusetts

First Edition, 1990, Fourth Edition 1992

The information in this document is subject to change without notice and should not be construed as a commitment by Digital Equipment Corporation. Digital Equipment Corporation assumes no responsibility for any errors that may appear in this document.

© Digital Equipment Corporation 1990, 1992.

All Rights Reserved.

The following are trademarks of Digital Equipment Corporation: DEC, EtherWORKS, the DIGITAL logo, ThinWire, and VAX DOCUMENT.

IBM and Personal Computer AT are registered trademarks of International Business Machines, Inc.

This document was prepared using VAX DOCUMENT, Version 2.1.

Contents

Preface vii

1 Installing the *LC* Board

1.1 Introduction 1–1
1.2 Preparing Your Computer 1–2
1.3 Selecting the Network Interface 1–4
1.4 Installing the *LC* Board 1–6
1.5 Running the Power Up Self-Test 1–10
1.6 Connecting to a Network 1–10
1.6.1 Connecting to ThinWire Ethernet 1–11
1.6.2 Connecting to ThickWire Ethernet 1–12
1.7 Installing the Software 1–12

2 Configuring the *LC* Board

2.1 Introduction 2–1
2.2 Default Settings 2–1
2.3 Sellecting Settings 2–4
2.4 Memory Addressing Range and Size Selection (SW1 - SW4) 2–4
2.5 I/O Address Selection (SW5) 2–7
2.6 Remote Boot Selection (SW6) 2–8
2.7 Remote Boot Period Selection (SW7) 2–9
2.8 IRQ Selection (SW8 - SW12) 2–10

3 Problem Solving

3.1 Fault Isolation by Symptom 3–1
3.2 LED Activity 3–5
3.3 Recovering From Self-Test Errors 3–6

A General Information

A.1 Introduction A–1
A.2 Physical Description A–1
A.2.1 Functional Components A–1
A.2.2 LED A–2
A.2.3 Environmental Requirements A–2
A.3 System Specifications A–2

B Installing an Option ROM

B.1 Introduction B–1
B.2 ROM Installation Procedure B–1

Figures

1 DEC EtherWORKS *LC* Product Kit (Digital PN DE100-AA) ix
1–1 Removing the System Unit Cover 1–3
1–2 Selecting the Network Interface 1–5
1–3 Removing the Slot Cover 1–7
1–4 Installing the DEC EtherWORKS *LC* Board 1–8
1–5 Replacing the Screws and Cover 1–9
1–6 Connecting to a ThinWire Network 1–11
1–7 Connecting to a ThickWire Network 1–12
2–1 *LC* Board Switch Pack 2–3
2–2 Memory Range C8000 to CFFFF for 32 KB 2–6
2–3 Switch Selecting 200 - 20F I/O Memory . . . 2–7

2–4 Switch Enabling Remote Boot 2–8
2–5 Switch Selecting 150 Seconds for Remote Boot 2–9
2–6 Switch Selecting IRQ3 2–11
B–1 DEC EtherWORKS *LC* ROM Installation B–2

Tables

1–1 Setting the Shunt Connector 1–4
2–1 Switch Pack Default Settings 2–2
2–2 Switch Settings and Memory Address Ranges 2–5
2–3 Interrupt Request Line Switches 2–10
3–1 Fault Isolation by Symptom 3–1
3–2 LED Activity 3–5
3–3 Self-Test Error Codes 3–6
A–1 System Specifications A–2

Preface

The DEC EtherWORKS *LC* Ethernet Controller is a personal computer bus adapter that enables you to integrate various IBM /PC/XT/AT or compatible personal computers into a network using either ThickWire or ThinWire Ethernet cables.

This manual describes how to install and configure the *LC* board. Using the manual, you should be able to prepare an IBM/PC/XT/AT or compatible personal computer and an *LC* board for use on an Ethernet network.

You do not need to know a lot about computers to install the *LC* board. You need to understand the basic concepts and uses of Ethernet networks, and be familiar with personal computers. For more information on compatibility of the *LC* board with your computer, see your system administrator.

This manual is organized as follows:

- Chapter 1 contains installation instructions.
- Chapter 2 explains board configuration.
- Chapter 3 contains problem solving information.
- Appendix A describes the hardware and software features.
- Appendix B provides a ROM installation procedure.

The conventions used in this manual are described in the next table.

Convention	Meaning
CAUTION	Provides information to prevent damage to equipment.
NOTE	Provides general information.
PN	Part number.
❶	A number in a circle in text refers to the corresponding number in an accompanying illustration.

Product Kit Contents

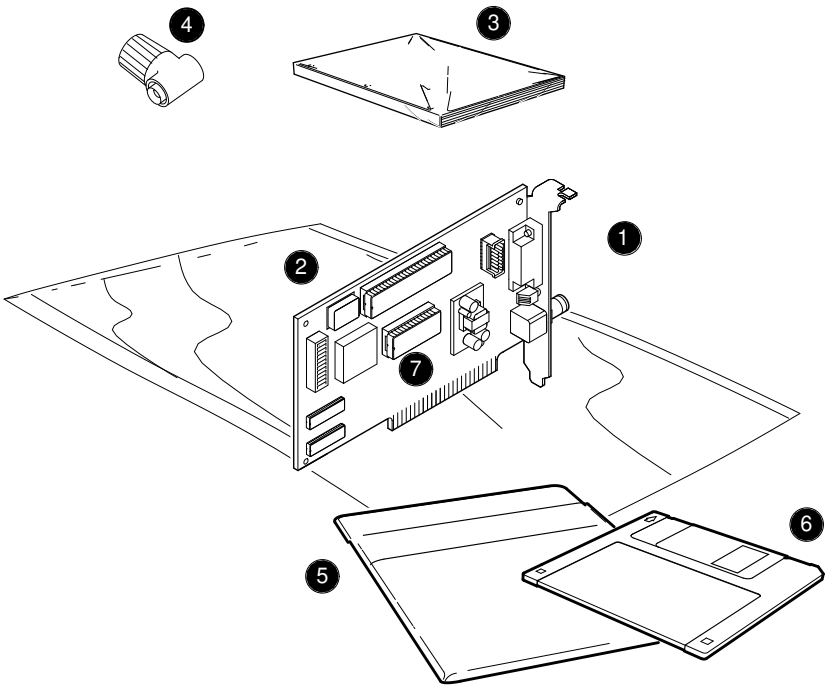
Before you install an *LC* board, be sure you have the following components, shown in Figure 1.

- The DEC EtherWORKS *LC* Board ❶, packaged in an anti-static bag ❷
- Owner's manual ❸
- T-Connector ❹
- Installation diskette (5¼ inch) ❺
- Installation micro-diskette (3½ inch) ❻

Note

If your *LC* board does not have a ROM as shown in ❼ Figure 1, refer to Appendix B.

Figure 1 DEC EtherWORKS *LC* Product Kit (Digital PN DE100-AA)



CAUTION

Static electricity can damage printed circuit boards and chips. A grounded wrist strap and grounded work-surface-to-earth ground should be used when handling these components.

1

Installing the *LC* Board

1.1 Introduction

This chapter describes how to install an *LC* board into an IBM/PC/XT/AT or compatible personal computer. The only tool you need is a flat-head screwdriver.

After you install the board, you need to use the installation diskette to access information about the software. The diskette size (5¼ or 3½) you use depends on your computer.

1.2 Preparing Your Computer

Before you install the *LC* board, you need to prepare your computer as described in the next procedure. The illustrations show an IBM PC personal computer, however, you can use the same procedure for other PCs with only minor modifications.

1. Remove any diskette from the diskette drive.
2. Set all power switches to O (off).
3. Unplug the power cord from the wall outlet.
4. Disconnect all cables from the rear of the system unit.
5. Remove the screws from the rear of the system unit (Figure 1–1).
6. Slide the cover toward the front of the system unit until the cover is free.

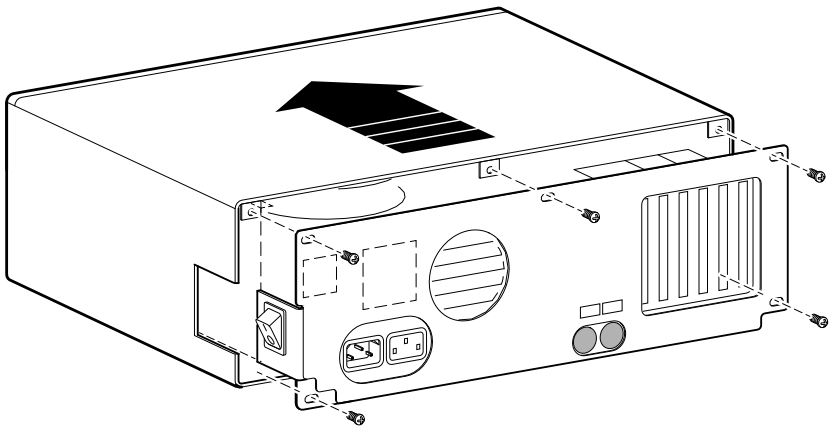
Note

The *LC* board has a switch pack that lets you determine how the board operates. This switch pack is already set to correspond to the needs of most customers (*default settings*). If the settings do not meet your requirements, you need to change them on the board (see Chapter 2).

Note

If the board is set to use an interrupt request line, base memory address, or I/O address that another option board uses, your computer or other boards may not operate correctly when you boot the system. To test the board with the default settings, you may need to remove all other option boards from the computer.

Figure 1–1 Removing the System Unit Cover



LJ-00583-TI0

1.3 Selecting the Network Interface

The *LC* board has a *shunt connector* (❶ Figure 1–2) that lets you determine how the board interfaces with the network—either ThinWire or ThickWire Ethernet networks. The board is shipped with the setting preselected for the ThinWire Ethernet network.

You may need to change the shunt connector setting before you install the board in your computer.

Table 1–1 summarizes the settings and Figure 1–2 shows the settings.

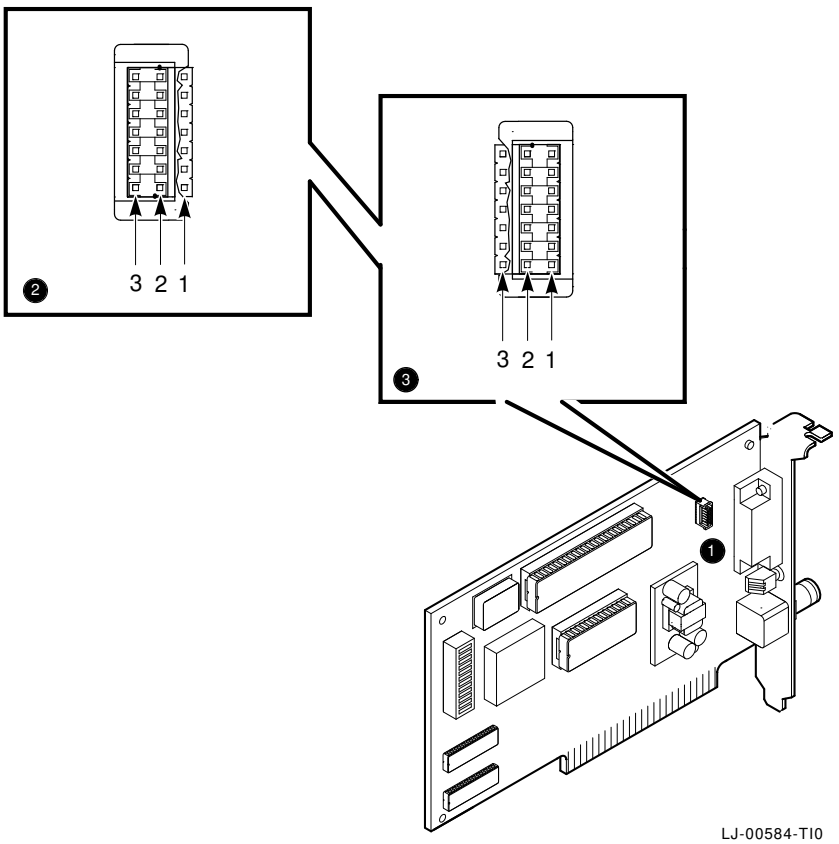
Table 1–1 Setting the Shunt Connector

If You Want To ...	Then ...
Connect to a ThinWire Ethernet network ❷	Leave the shunt connector in the position connecting pin rows 2 and 3 (*default setting*).
Connect to a ThickWire Ethernet network ❸	Move the shunt connector to connect pin rows 1 and 2.

CAUTION

Static electricity can damage printed circuit boards and chips. A grounded wrist strap and grounded work-surface-to-earth ground should be used when handling these components.

Figure 1–2 Selecting the Network Interface



1.4 Installing the *LC* Board

Install the *LC* board using the next procedure.

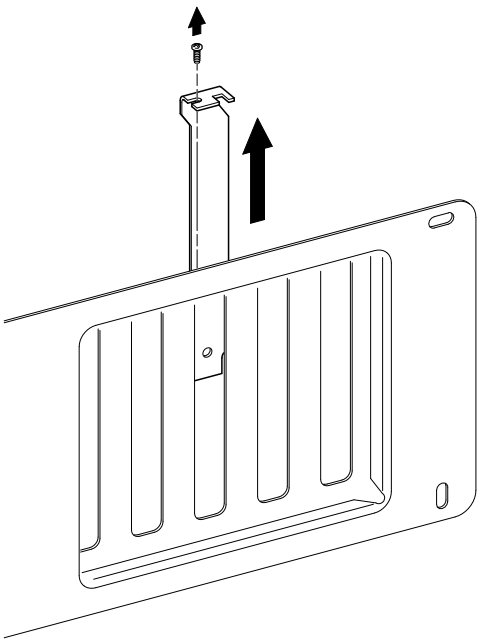
1. Remove the option slot cover from the slot you plan to use.

   Remove the screw from an available option slot on the rear panel insert. Save the screw for later use.

   Caution

   For safe operation, ensure that there are no missing slot covers when you complete the installation.

Figure 1–3 Removing the Slot Cover



LJ-00462-TI0

2. Place the *LC* board in the option slot.

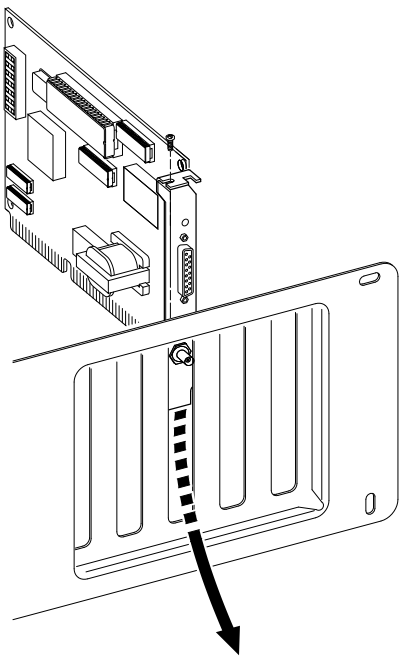
   Tip the board down and toward the rear of the system box to allow the BNC connector on the mounting bracket to clear the opening in the rear of the system unit (Figure 1–4).

3. Firmly press the board into place until it is securely seated.

   Be sure the BNC connector is centered in the opening.

4. Replace the screw on the slot cover.

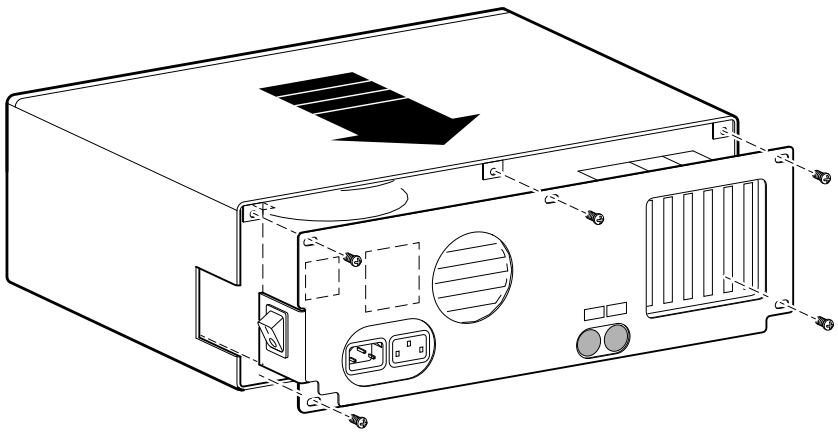
Figure 1–4 Installing the DEC EtherWORKS *LC* Board



LJ-02542-TI0

5. Replace the system unit cover.
   a. Slide the cover toward the rear of the system unit.
   b. Replace the screws (Figure 1–5) at the rear of the system unit.

Figure 1–5 Replacing the Screws and Cover



LJ-00587-TI0

6. Plug the keyboard connector into the rear of the system unit and connect the cables.
   a. Connect any option cables and the monitor cable to the rear of the system unit.
   b. Connect the power cable to the rear of the system unit, then plug the other end into the wall outlet.

1.5 Running the Power Up Self-Test

A power up self-test runs automatically each time your turn on or reset your computer.

When the self-test completes successfully, the screen displays *LC* board configuration information, and then the system prompt appears.

If the self-test is unsuccessful, an error code, such as DE100 88, appears on the screen during the restart process, indicating that a self-test error has occurred. Note the error code and refer to Section 3.2.

1.6 Connecting to a Network

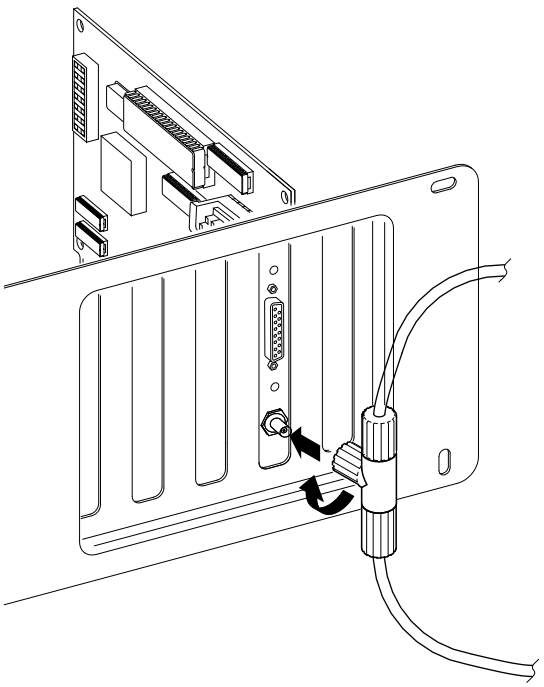
Depending on how you set the shunt connect in Section 1.3, use one of the following procedures to connect your system to the network. For ThinWire Ethernet, refer to Section 1.6.1; for ThickWire Ethernet, refer to Section 1.6.2.

1.6.1 Connecting to ThinWire Ethernet

Connect the board to ThinWire Ethernet by attaching the T-Connector to the ThinWire Ethernet connector.

Push the connector nut of the T-Connector onto the BNC connector on the bottom of the board mounting bracket, then turn the nut clockwise until it locks into place (Figure 1–6).

Figure 1–6 Connecting to a ThinWire Network

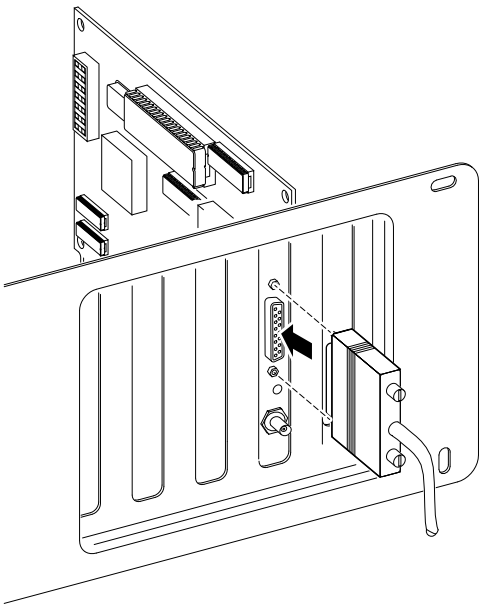


LJ-02541-TI0

1.6.2 Connecting to ThickWire Ethernet

Connect the transceiver cable to the ThickWire Ethernet connector (Figure 1–7).

Figure 1–7 Connecting to a ThickWire Network



LJ-02540-TI0

1.7 Installing the Software

Read the files named "README.TXT" and "RELEASE.NOT" on the installation diskette. These files contain the instructions for loading the *LC* software drivers, problems found, and how to configure your system.

2

Configuring the *LC* Board

2.1 Introduction

The *LC* board switch pack contains 12 switches you can set that enable the board to operate in a configuration without interference with the other boards in your computer. This chapter describes how to change the settings on the switch pack.

If you have many options in your system, you may also need to change the interrupt request (IRQ) line, the I/O address setting, or the memory address setting on the *LC* board to create a compatible operating set.

2.2 Default Settings

The *LC* board is shipped with the switch pack settings preselected (*default settings*) to work in most installations. These settings are shown in Table 2–1 and illustrated in Figure 2–1.

Table 2–1 Switch Pack Default Settings

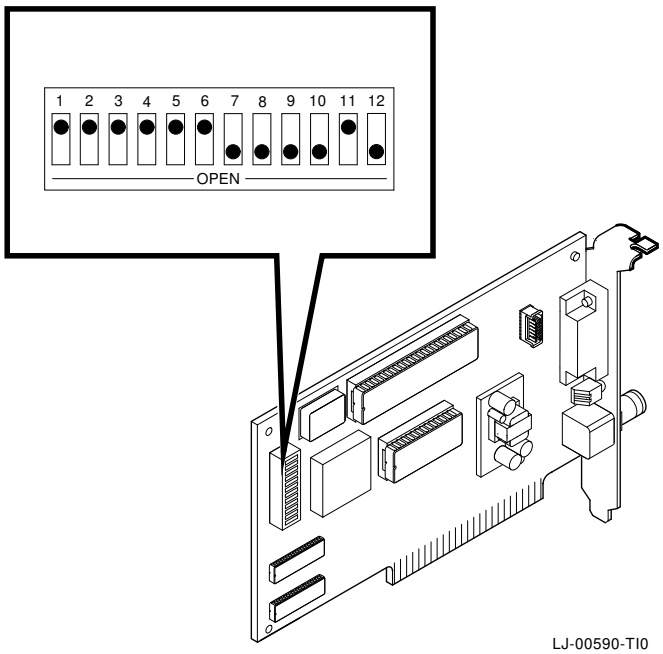
Switch	Setting	Function	Default
SW1 SW2	ON ON	Sets the base memory address range.	Base memory address range set to D0000 - DFFFF (hex).
SW3 SW4	ON ON	Selects a base memory size.	64 KB of memory selected.
SW5	ON	Sets the I/O memory address.	I/O starting address set to 300 (hex).
SW6	ON	Enables or disables the remote boot feature. [1]	Remote boot disabled.
SW7	OFF	Sets the timeout period for the remote boot attempt.[1]	Thirty-second timeout period set.
SW8	OFF	Enable IRQ2	
SW9	OFF	Enable IRQ3	
SW10	OFF	Enable IRQ4	
SW11	ON	Enable IRQ5	IRQ5 enabled.
SW12	OFF	Enable IRQ7	

[1]This feature requires installation of the option ROM chip. Refer to Appendix B for more information.

Note

When the switches are set to the open position, the setting is OFF.

Figure 2–1 *LC* Board Switch Pack



2.3 Sellecting Settings

You can set only one board in the computer to use a specific interrupt request line, I/O memory address, or base memory address. If you do not know the settings for the other boards:

- Ask your system administrator for a list of the settings.
- Check the board documentation for the possible settings.
- Inspect the boards to determine the actual settings.

If a conflict exists, you can change the appropriate setting on the *LC* board as described in the sections that follow. The switches being described are highlighted in the illustrations.

2.4 Memory Addressing Range and Size Selection (SW1 - SW4)

Switches SW1 and SW2 select the memory addressing range. Switches SW3 and SW4 select the size of the system memory. Table 2–2 lists the possible memory address ranges and the switch settings that select them.

Only one board can be set to use a given memory address range. Check the documentation supplied with your personal computer and other boards to determine memory address requirements. If a memory range conflict occurs with other boards, select a range that is not used.

Table 2–2 Switch Settings and Memory Address Ranges

Buffer Size	SW1	SW2	SW3	SW4	Memory Addressing Range
64 KB	OFF	ON	ON	ON	C0000—CFFFF
	ON	ON	ON	ON	D0000—DFFFF *(default setting)*
	OFF	OFF	ON	ON	E0000—EFFFF[1]
32 KB	OFF	ON	OFF	ON	C8000—CFFFF
	ON	ON	OFF	ON	D8000—DFFFF
	OFF	OFF	OFF	ON	E8000—EFFFF[1]
2 KB[2]	-	-	-	OFF	-

[1]Some PCs do not support the E0000 - EFFFF or E8000 - EFFFF memory address ranges; check your PC manual for this informatiON.

[2]At this time, Digital PCSA software does not support 2 KB mode.

Note

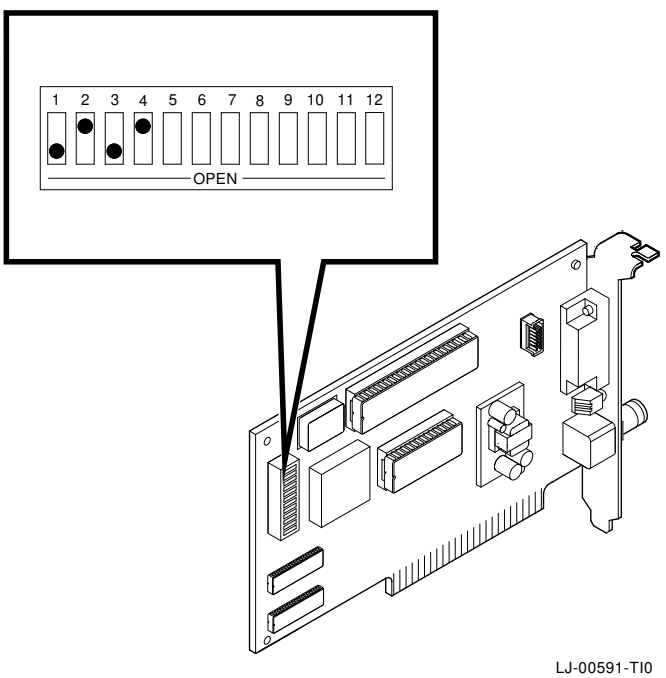
Setting SW1 to the ON position and SW2 to the OFF position is an illegal configuration and could prevent the computer from working correctly.

The *LC* board works best when the entire 64 KB of network buffer memory is enabled for operation. Some option boards and system configurations do not permit the allocation of this amount of memory. Network performance is slower when you select 32 KB or 2 KB, but you can use the *LC* board in configurations where address space is at a premium.

Example:

Figure 2–2 shows the settings for SW1 through SW4 that select the C8000 to CFFFF (hex) system memory addressing range.

Figure 2–2 Memory Range C8000 to CFFFF for 32 KB

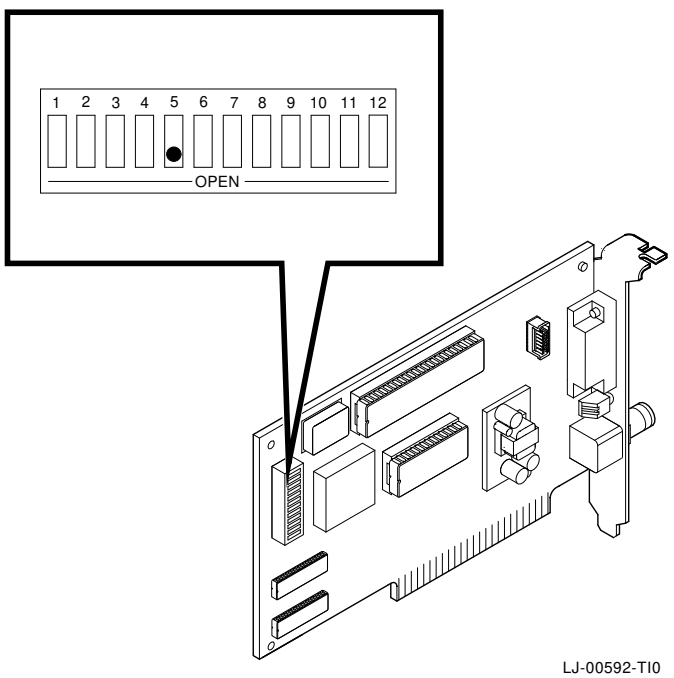


2.5 I/O Address Selection (SW5)

The *LC* board uses one of two I/O address ranges (primary or secondary) to communicate with the CPU. Only one board in the computer can be set to use a given I/O address range.

- Switch SW5 set to ON selects the primary I/O address range (300 - 30F; *default setting*).
- Switch SW5 set to OFF selects the secondary I/O address range (200 - 20F) (Figure 2–3).

Figure 2–3 Switch Selecting 200 - 20F I/O Memory

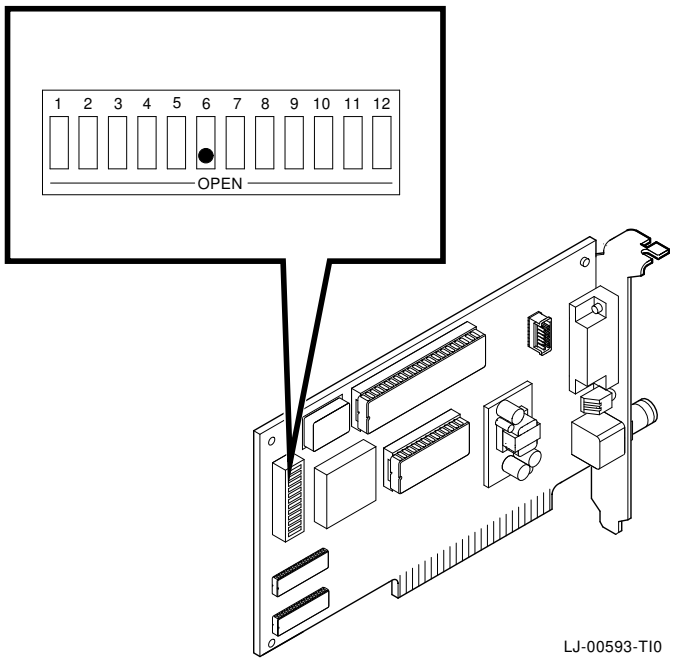


2.6 Remote Boot Selection (SW6)

Switch SW6 determines whether the remote boot feature is enabled or disabled. [1]

- Switch SW6 set to ON disables remote boot (*default setting*).
- Switch SW6 set to OFF enables remote boot (Figure 2–4).

Figure 2–4 Switch Enabling Remote Boot



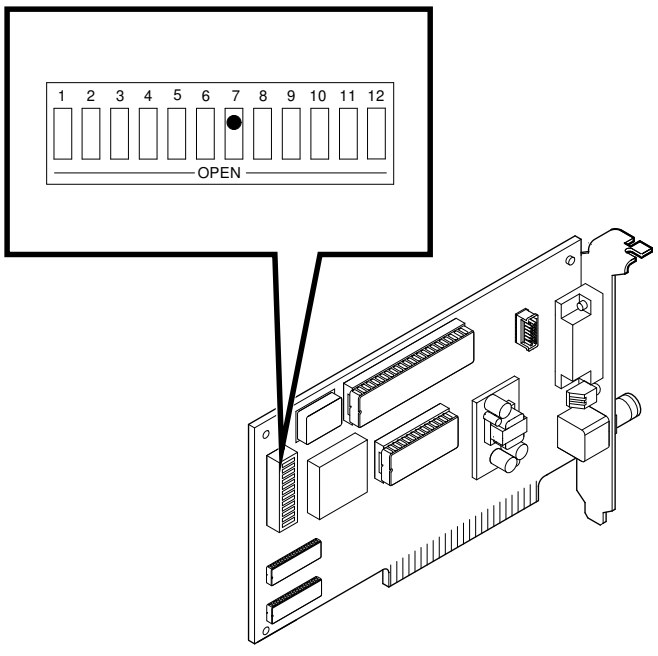
[1] This feature requires installation of the option ROM chip. Refer to Appendix B for more information.

2.7 Remote Boot Period Selection (SW7)

SW7 controls the timeout period for attempting a remote boot operation.

- Switch SW7 set to OFF sets the remote boot timeout to 30 seconds (*default setting*).
- Switch SW7 set to ON sets the remote boot timeout to 150 seconds.

Figure 2–5 Switch Selecting 150 Seconds for Remote Boot



2.8 IRQ Selection (SW8 - SW12)

You can use switches SW8 through SW12 to select an interrupt request line (IRQ). The *LC* board uses one IRQ line for the network interface (NI). Table 2–3 lists the switches and the interrupt request line that is enabled.

Table 2–3 Interrupt Request Line Switches

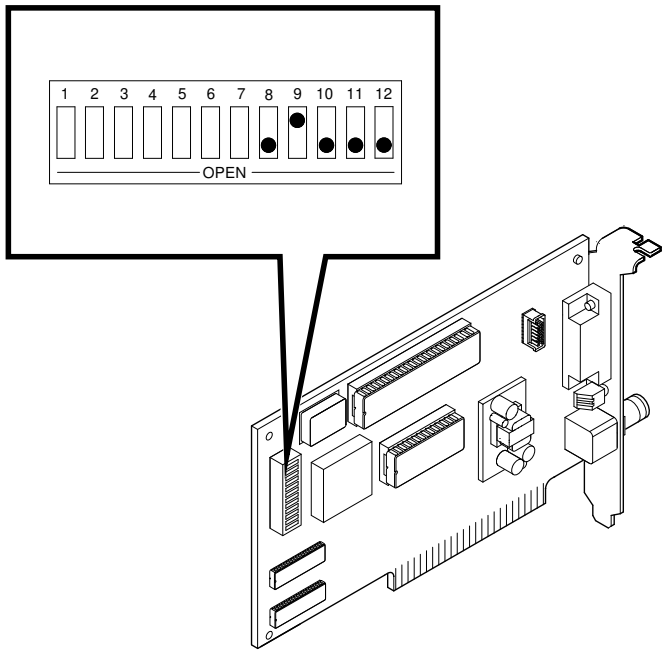
Switch	Interrupt Request Line
SW8	IRQ2
SW9	IRQ3
SW10	IRQ4
SW11	IRQ5 *(default setting)*
SW12	IRQ7

Only one of the switches should be set to ON. By default, SW11 is set to ON, selecting IRQ5.

Example:

To select IRQ3, set SW9 to the ON position and set switches SW8, SW10, SW11, and SW12 to the OFF position (Figure 2–6).

Figure 2–6 Switch Selecting IRQ3



3
Problem Solving

The tables in this chapter describe problems you may encounter with the *LC* board and provide possible causes and solutions.

3.1 Fault Isolation by Symptom

Table 3–1 describes how to isolate faults by the symptoms occurring and any corrective action to be taken.

Table 3–1 Fault Isolation by Symptom

Symptom	Possible Cause	Recommended Action
The system is on, but there is no display.	The monitor is not on or it is not connected to the video board.	Be sure the monitor cable is firmly connected to the video board. Set the monitor power switch to on.
	The *LC* board is not seated firmly.	Remove and reinsert the board firmly into the option slot (Section 1.3.)
	The I/O or memory address is set wrong or is causing a conflict with another board.	Check the settings for SW1 through SW5. An address range conflict may exist between the *LC* board and another option board.

(continued on next page)

Table 3–1 (Cont.) Fault Isolation by Symptom

Symptom	Possible Cause	Recommended Action
	The *LC* board is preventing the computer from operating correctly.	Disconnect the transceiver cable or the twisted-pair cable from the *LC* board. Turn the computer off then on again. If the problem persists, contact your system administrator or authorized service representative.
The system is on, but nothing happens. The *LC* board LED is on for longer than 30 seconds. The keyboard does not respond.	The *LC* board is preventing the CPU from operating correctly.	Disconnect the transceiver cable or the twisted-pair cable from the *LC* board, then turn the computer off then on again.
	The I/O or memory address is set wrong or is causing a conflict with another board.	Check the settings for SW1 through SW5. An address range conflict may exist between the *LC* board and another option board. If the problem persists, contact your system administrator or authorized service representative.
The system does not boot from the diskette.	Switch SW6 is in the OFF position.	Set SW6 to the ON position.

(continued on next page)

Table 3–1 (Cont.) Fault Isolation by Symptom

Symptom	Possible Cause	Recommended Action
	The system diskette may be corrupted.	See your system administrator for a bootable system diskette.
The system does not remote boot.	Switch SW6 is set to the ON position, disabling remote boot.	Set switch SW6 to the OFF position.
	If a 30-second remote boot time is set, it may not be long enough for a busy network.	Set switch SW7 to the ON position, enabling a 150-second timeout.
	The Ethernet address is not registered for this address node.	Re-register this board. If the problem persists, contact your system administrator.
The system is on, but the network does not start.	The network interface or remote boot is set incorrectly.	Check the shunt connector setting.
	The network cables are loose.	Check and secure all cables.
	A conflict exists with another board in the system:	
	• IRQ jumpers are set incorrectly.	Check the settings for SW8 through SW12 (Chapter 2).
	• The I/O address or memory address range is set incorrectly.	Check settings for SW1 through SW5 (Chapter 2).
	The Ethernet address is not registered for this address node.	Re-register this board. If the problem persists, contact your system administrator.

(continued on next page)

Table 3–1 (Cont.) Fault Isolation by Symptom

Symptom	Possible Cause	Recommended Action
The system is on and displays DE100 and a self-test code during system startup.	A possible problem exists with the *LC* board.	See Table 3–3. Press the F1 key to continue. Replace or reinsert the board and try starting the system again.
	The I/O address or memory address range is set incorrectly, or is causing a conflict with another board.	Check the settings for SW1 through SW5. An address range conflict could exist between the *LC* board and another option board.
	The error code may be an IBM error code.	See your IBM owner's manual for additional information. If the problem persists, contact your system administrator.
The system cannot return to network operation after exiting an application program.	You may be using a program written or compiled in Version 1.0 BASIC (IBM BASIC Version 1.0, Interpreter or Compiler, GW-BASIC Version 1.0).	Do not use these versions of the program. Recompile the program using Version 2.0 or later of BASIC, or contact your software vendor for an updated version of the program.

3.2 LED Activity

There is an amber light emitting diode (LED) on the *LC* board mounting bracket that displays the operating status of the board. The next table describes the different LED activity.

Table 3–2 LED Activity

LED Activity	Cause	User Action
The LED stays on for 20 seconds, then it goes off.	Normal during self-test.	None.
The LED stays on after 20 seconds.	A fault has occurred and an error number appears on the screen.	See the *LC* board self-test error codes (Table 3–3).

3.3 Recovering From Self-Test Errors

Self-test errors can occur at system startup. Table 3–3 lists the *LC* board self-test error codes, possible cause, and recommended action. To recover from some errors, you can try pressing the F1 function key to resume system operation.

Note

Although the *LC* board detects an error and is not operating, you can still use your personal computer.

Table 3–3 Self-Test Error Codes

Error	Description	Recommended Action
80	Memory access conflict	Check switches SW1 through SW5 for a conflict with another installed board.
81	Data path error	Check switches SW1 through SW5 for a conflict with another installed board. Call your Digital authorized service representative.
82	Address test conflict	Check switches SW1 through SW5 for a conflict with another installed board.
83	RAM Test conflict	Check switches SW1 through SW5 for a conflict with another installed board.
84	Ethernet ROM CRC error	Check switch SW5 for a conflict with another installed board. If the problem continues, call your Digital authorized service representative.
85	NI_CSR Error	Call your Digital authorized service representative.

(continued on next page)

Table 3–3 (Cont.) Self-Test Error Codes

Error	Description	Recommended Action
86	LANCE I/O Address conflict	Check the setting for switch SW5.
87	LANCE Initialization error	Call your Digital authorized service representative.
88	LANCE IRQ Conflict	Check the IRQ switch settings, SW8 through SW12.
89	NI_CSR Mask test error	Call your Digital authorized service representative.
8A	LANCE Internal loopback error	Call your Digital authorized service representative.
8B	LANCE Collision error	Call your Digital authorized service representative.
8C	LANCE CRC Error	Call your Digital authorized service representative.
8D	Shadow RAM error	Call your Digital authorized service representative.
8E	Shadow RAM enable error	Call your Digital authorized service representative.
8F	Configuration error	Check switches SW8 through SW12 to be sure only one of the switches is in the ON position. Also check the parameter settings for your network to be sure they match the board configuration.

A

General Information

A.1 Introduction

The *LC* board lets you integrate IBM/PC/XT/AT and compatible personal computers into a network. After installing an *LC* board, you can use various network software products to integrate the computer into a network.

You can install an *LC* board in any IBM/PC/XT/AT or a computer that has an IBM/PC/XT/AT compatible bus.

You can connect the *LC* board to either a ThinWire network or a ThickWire network. You cannot, however, connect the *LC* board to both kinds of networks at the same time.

A.2 Physical Description

The *LC* board is a half-length, IBM PC form-factor printed circuit board that uses an 8-bit bus connector with no "overhang" interference.

The board measures 17.2 cm x 10.8 cm (6.75 inches x 4.25 inches); the length to the end of the connector is 18.7 cm (7.38 inches).

A.2.1 Functional Components

The major functional components on the *LC* board are:

- Ethernet network protocol controller (LANCE)
- ThinWire (BNC connector) network interface
- Standard Ethernet ThickWire (DB-15S connector) network interface

- Network buffer RAM - 64 KB
- Diagnostics and remote-boot ROM - 16 KB (optional)
- Ethernet hardware address ROM

A.2.2 LED

There is one light emitting diode (LED) on the mounting bracket that displays the operating status of the *LC* board. This amber LED comes on during power-up testing and stays on if the test discovers a fault. Chapter 3 contains additional information about the LED.

A.2.3 Environmental Requirements

The environmental (temperature and humidity) requirements for the *LC* board are the same as for your IBM/PC/XT/AT personal computer.

A.3 System Specifications

The *LC* board operates correctly at an I/O channel bus speed of 4.77, 6, 8, or 10 MHz. Table A–1 lists the system specifications of the *LC* board.

Table A–1 System Specifications

Memory Buffer Size	Memory Addressing Range
64 KB	C0000—CFFFF D0000—DFFFF E0000— EFFFF[1]
32 KB	C8000—CFFFF D8000—DFFFF E8000— EFFFF[1]
2 KB[2]	—-

[1]Some PCs do not support the E0000 - EFFFF or E8000 - EFFFF address ranges; check your PC manual for this information.

[2]At this time, Digital PCSA software does not support the 2 Kbyte mode.

(continued on next page)

Table A–1 (Cont.) System Specifications

I/O Memory Assignments	
I/O	200-20F 300-30F

Network Interface	Available Selections
Interrupt request line	IRQ2, IRQ3, IRQ4, IRQ5, IRQ7

Power Requirements Amps DC (maximum)	Wattage (maximum)
ThickWire: @ +5V: 0.85	10.25
ThinWire:@ +12V: 0.35 0.5 A (maximum) to power external transceiver, DEC AUI (H4000 or equivalent)	8.45
Bus Loads: 2 LSTTL	

Operating Environment	
Temperature (at sea level)	15° C - 32° C (59° F - 90° F)
Relative humidity	8% to 80% (non-condensing)
Radiated emissions	FCC Class B VDE Class B

CAUTION

When adding any new option board to your computer, verify that the combined power (wattage) required for all boards in your computer does not exceed the power supply rating. Check your PC documentation for this information.

B

Installing an Option ROM

B.1 Introduction

A ROM chip is optional on the *LC* board and is not required for correct operation. If you purchased the *LC* board from Digital (part number DE100-AA), then the board already has the option ROM installed.

Caution

Static electricity can damage printed circuit boards and chips. It is strongly recommended that a grounded wrist strap and grounded work-surface-to-earth ground be used when handling these components.

If your configuration requires an option ROM chip, and does not have one installed, use the procedure described next to install one.

B.2 ROM Installation Procedure

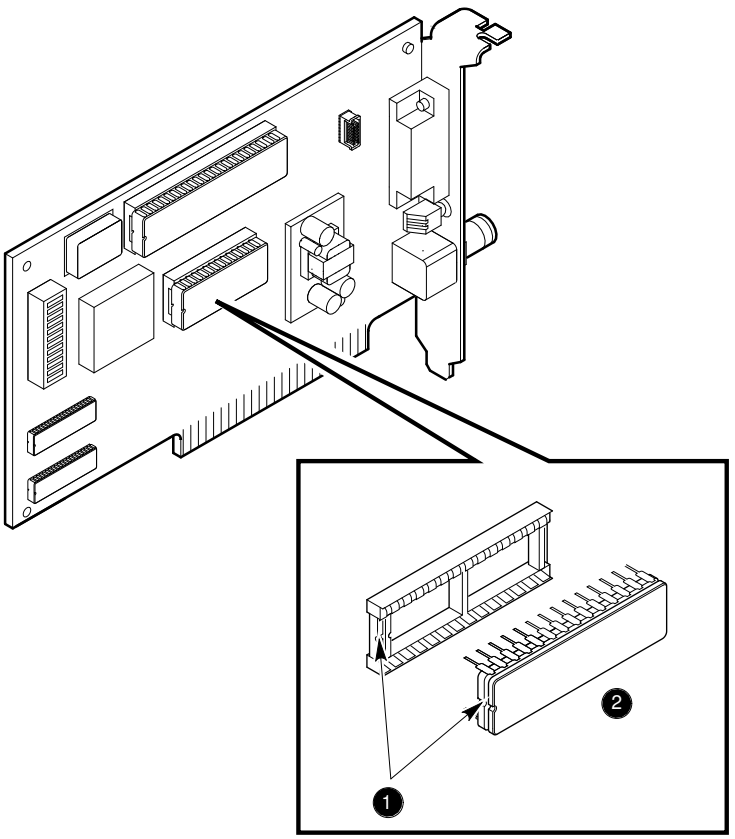
Refer to Figure B–1 while following this procedure.

Caution

Incorrect installation of the ROM chip can damage the board.

1. Note the location of the notch ❶ on the silk screen surrounding the ROM socket.

Figure B–1 DEC EtherWORKS *LC* ROM Installation



LJ-00596-TI0

2. Be sure that the notch on the ROM ❷ aligns with the notch on the silk screen and the socket.
3. Align the pins on the chip and press from side to side until the chip is fully seated.