EXOS 205

Ethernet Front-End Processor
For Personal Computers
Reference Manual

This document reflects the features and specifications of the EXOS 205 Ethernet Front-End Processor.

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EXOS 205
Reference Manual

REVISION HISTORY

REVISION	DATE	SUMMARY OF CHANGES
A	10-25-85	Initial Release. EXOS 205 Ethernet Front-End Processor For Personal Computers Reference Manual Publication No. 4200020-00
B	2-10-86	Added Ethernet Version 1.0 compatibility

PREFACE

This manual describes Excelan's EXOS 205 Ethernet Front-End Processor board. It provides information necessary to configure and install the board in personal computers from the IBM PC family or other IBM PC compatible personal computers.

Once the EXOS 205 is installed in a PC, the PC can be connected to an IEEE 802.3 or Ethernet Local Area Network. Then, using appropriate network software the PC can communicate with other systems on the nework.

This manual is intended for users who wish to install the EXOS 205 in their PCs and then connect their PCs to an IEEE 802.3 or Ethernet LAN.

The manual does not attempt to provide information on setting up a network. As a matter of fact, it assumes that the network already exists. Reference [3] listed below contains detailed information on network standards.

The following publication provide related, additional study material for the advanced user:

The EXOS 205 is required when using the EXOS 8011 or EXOS 8011 TCP/IP protocol software package:

[1]   *EXOS 8011 TCP/IP Protocol Package, Reference Manual*, Publication No. 42000xx-00, Excelan Inc., 1985.

[2]   *EXOS 8051 TCP/IP Protocol Package, Reference Manual*, Publication No. 42000xx-00, Excelan Inc., 1985.

The EXOS 205 conforms to the following specification:

[3]   *The Ethernet: A Local Area Network: Data Link Layer and Physical Layer Specifications*, Version 2.0, DEC, Intel, and Xerox Corporations, November 1982.

[4]   *IEEE Standard 802.3-1985, a bus utilizing CSMA/CD as the access method*, IEEE Inc., 1985.

The EXOS 205 uses the 82586 LAN Coprocessor for implementation of Ethernet Data Link protocol:

[5]   *LAN Components User's Manual*, Document No. 230814-001, Intel Corp., 1984.

The EXOS 205 supports front-end processing of user-written higher-level protocols, on an 80186 CPU:

[6]   *iAPX 86/88, 186/188 User's Manual*, Document No. 210911-001, Intel Corp., 1983.

The following reference describes the ISO Open Systems Model:

[7]   *Reference Model of Open Systems Interconnection*, Document no. ISO/TC97/SC16 N227, International Organization for Standardization (ISO), June 1979.

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1.1. INTRODUCTION

The EXOS 205 Ethernet front-end processor is a high-performance, intelligent, front-end communications processor board for use in your IBM PC, IBM PC XT, IBM PC AT, or a compatible machine. With the EXOS 205 in your PC you can connect it to an IEEE 802.3 or Ethernet Local Area Network (LAN); using a compatible protocol software, such as Excelan's EXOS 8011 (for XENIX) or EXOS 8051 (for DOS) TCP/IP protocol software package, you can communicate with other systems on the network.

The EXOS 205 is a standard-size board that plugs into an expansion slot of the PC. It installs easily in an IBM PC, IBM PC XT, and IBM PC AT. It also installs easily in most IBM PC compatible machines.

The EXOS 205 has its own on-board CPU and dual-port RAM. It uses the on-board resources to execute software supplied as part of the protocol package. The EXOS 205 can also execute any suitably written user software.

1.2. EXOS 205 FEATURES

The following are the salient features of the EXOS 205 Ethernet front-end processor:

- Fully plug-compatible with the IBM PC family of computers as well as with PC-compatible personal computers

- Easy physical installation

- Intel 80186 CPU operating at 8 MHz

- 128 Kbyte RAM with parity check

- Supports Ethernet (Version 1.0 and 2.0) and IEEE 802.3 transceivers

1.3. MANUAL ORGANIZATION

This manual is organized as follows:

Chapter 1, Introduction, provides an overview of the EXOS 205 and describes the minimum system hardware and software configuration requirements for using the EXOS 205.

Chapter 2, Installation, describes the step-by-step procedure for installing the EXOS 205 in a PC. The chapter also describes how to run the diagnostics. In addition, it provides jumper information for selecting various options.

Chapter 3, Service Information, provides guidance on how to return the EXOS 205 for service/repair to Excelan. Also included in this chapter are the EXOS 205 schematics.

Appendix A lists the technical specifications for EXOS 205.

Appendix B provides pin-outs for the transceiver drop cable connectors.

1.4. MINIMUM HARDWARE CONFIGURATION

The minimum hardware configuration depends on whether the network protocol software and the operating system it runs under that you are going to use. Please refer to the applicable protocol software manual for details on this issue.

1.5. MINIMUM SOFTWARE CONFIGURATION

You will need DOS if you would want to run the EXOS 205 *install* program. This program resides on the EXOS 205 installation diskette, which is supplied with the board. You run the *install* program after installing the EXOS 205 in the PC.

The *install* program provides two main functions: it modifies the *Configuration File* and it executes the board diagnostics that exercise the EXOS 205 and checks whether the physical installation was done correctly.

The *Configuration File*, which resides on the EXOS 205 installation diskette, contains the system hardware/software configuration information. Initially, it contains certain default values. These defaults can be modified by supplying the new information interactively during the execution of the *install* program or by editing the file. The information in the *Configuration File* is used by the EXOS 8051 software. The format for this file is described in Appendix C.

2.1. INTRODUCTION

The EXOS 205 Ethernet front-end processor board installs in one of the vacant expansion slots of the IBM PC/XT/AT or a compatible machine. Installing the EXOS 205 is a relatively simple procedure that does not require any special tools. All that is required is a straight-edge, medium-size screwdriver or a 1/4" and a 3/16" nutdriver.

Before you can begin installing the board into your PC, you need to understand the board's configuration, which is described below.

The 128-Kbyte dual-port memory of the EXOS 205 can be accessed by the PC in blocks of 16 Kbytes. This is accomplished by mapping a 16-Kbyte window of the PC address space into the EXOS memory. The 16-Kbyte window must begin on a 16K boundary of the PC address space. In addition, the EXOS 205 uses a block of eight I/O addresses and one host interrupt level.

As shipped from the factory, the EXOS 205 is configured to utilize the following addresses and interrupt level on the PC. These values are used by the *install* program resident on the diskette supplied with the board. These settings should be supplied to the protocol software as prescribed. If necessary, these settings can be jumper-reconfigured.

> Memory: A0000 - A3FFF (hex) — The 16-Kbyte window to access the on-board RAM
>
> I/O space: 310 - 317 (hex)
>
> Interrupt: Level 2

Normally, you will not need to change the above configuration. However, it will be necessary to change it if the addresses mentioned above are used for any other purpose. For example, a PC using a graphic display card may already be using one or more of the above addresses. In such cases, the default values may need to be changed by reconfiguring the jumpers on the board. The newly configured values must then be written to the *Configuration File* — either by editing the file or by running the *install* procedure. Refer to Sections 2.3 and 2.4 for details.

The physical installation of the EXOS 205 board in the PC is a relatively simple task. A step-by-step procedure is provided in Section 2.2. After the installation, you run the *Install* program which resides on the EXOS 205 installation diskette provided with the board. This program lets you specify various configuration data for the EXOS 205 board, which the program writes to the *Configuration File*. The program then runs diagnostics that exercise various components on the board.

Once the EXOS 205 is installed and the diagnostics run successfully, you can install and execute the network protocol software, such as Excelan's EXOS 8011 or EXOS 8051 TCP/IP software package.

2.2. INSTALLING THE EXOS 205

The following equipment and tools are required to install the EXOS 205 board in the PC and then to connect the PC to the network:

1. Your PC – IBM/PC, IBM/PC/XT, IBM/PC/AT, Compaq, or a compatible PC

2. An EXOS 205 Ethernet front-end processor board

3. A plastic card guide (supplied with the board)

4. A transceiver drop cable

5. An Ethernet or IEEE 802.3 transceiver

6. A medium-size, flat-head screwdriver (or a 1/4" nutdriver and a 3/16" nutdriver)

INSTALLATION PROCEDURE

The following is a step-by-step procedure for installing the EXOS 205 in a PC. Specifically, this procedure is applicable for IBM/PC and IBM/PC/XT systems only. For other systems, refer to the manufacturer's expansion board installation guide or manual.

1. Determine if the default configuration of the EXOS 205 is suitable for your system. If suitable, continue with Step 2. Otherwise, reconfigure the board as described in Sections 2.4, note the new configuration information, and then continue with Step 2. (The new configuration information is used when the diagnostics are run. See Section 2.3.)

2. Turn off the power to the PC.

3. Place your PC on firm flat surface (such as a table or a desk top) with ample work space around it.

4. Disconnect/remove the following cables from the back panel of the system unit. See Figure 2-1 for system unit identification and Figure 2-2 for various cables identification.

   ● Main power cable

   ● Monitor power cable

   ● Keyboard cable

   ● Monitor cable

5. Remove and put aside the keyboard and the monitor.

6. Remove the five screws that hold the system unit shell and the components chassis together. See Figure 2-3.

7. Hold the shell from the front and slide it out as illustrated in Figure 2-4.

Monitor

System Unit

Keyboard

Diskette Drive

Power Switch
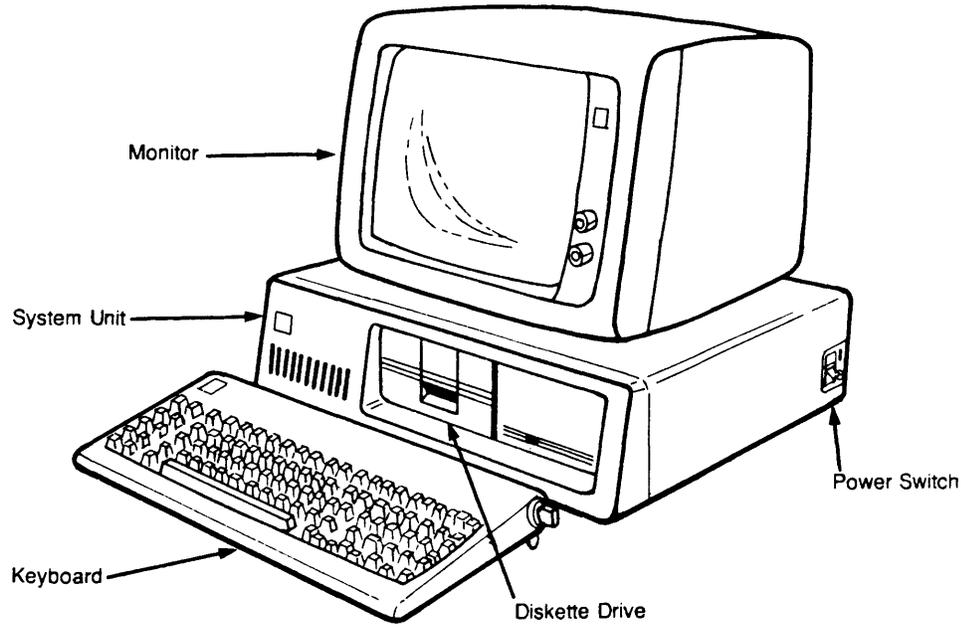
Figure 2-1: An IBM PC/XT System

Monitor Power Cable

Main Power Cable

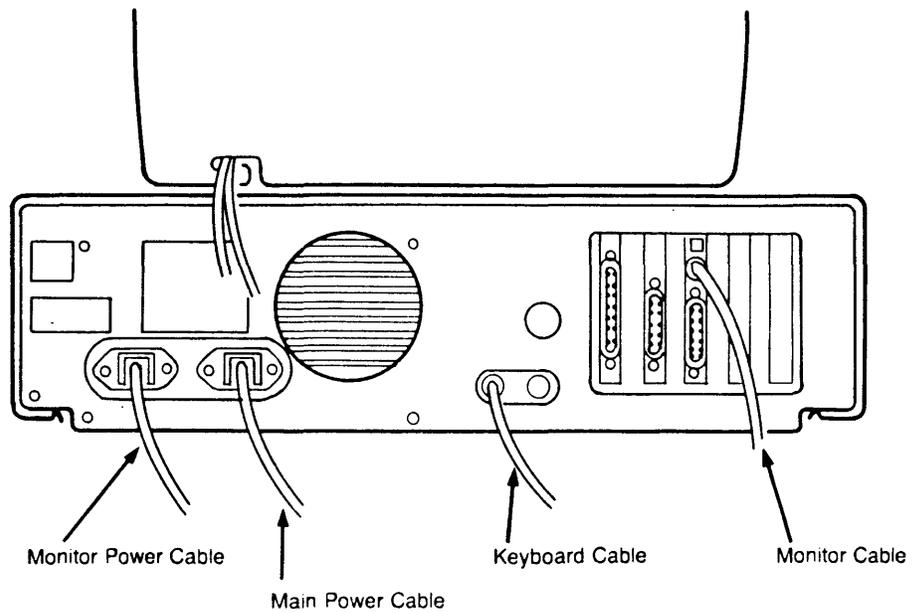Keyboard Cable

Monitor Cable

Figure 2-2: Removing the Cables
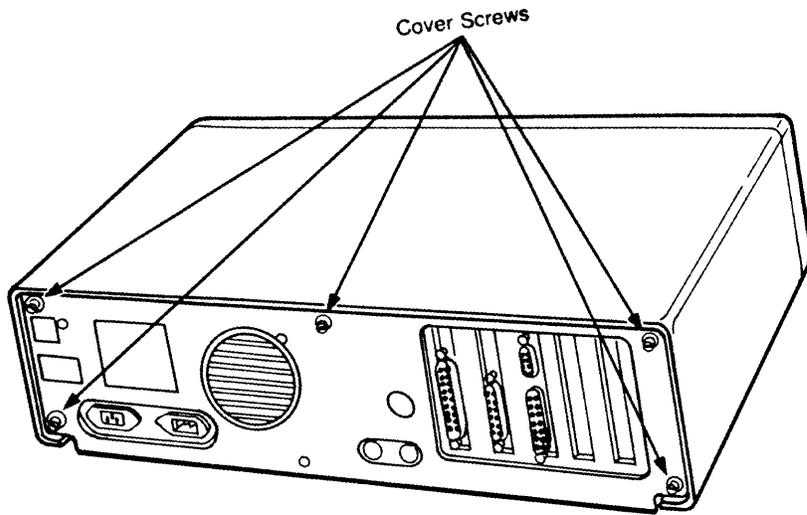
Cover Screws

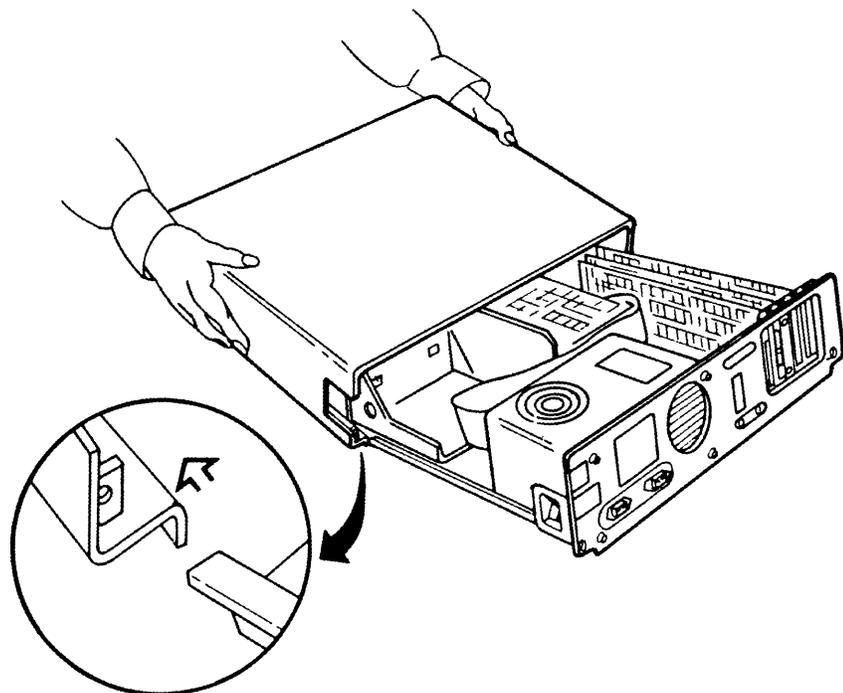**Figure 2-3: Removing/Replacing the Shell Screws**

Figure 2-4: Removing the System Unit Shell

8. Locate an unused expansion slot in the chassis and unscrew the cover plate at the rear of that slot. See Figure 2-5.

9. If not already present, install the card guide by inserting it into the holes in the front panel. Assure that the plastic arrows in the guide point downwards. See Figure 2-6.

10. Install the EXOS 205 board in the system unit: Gently slide the board into the plastic guide on the front panel and along the side slot uncovered in Step 8. Press the board firmly into the expansion slot, making sure that the board's edge connector mates securely with the motherboard's connector. Screw down the panel slot bracket, making sure the D-connector is centered in the panel slot. See Figure 2-7.

11. Replace the system unit shell by positioning the cover under the runners on the base with the front of the shell tilting upwards. Slide the shell over the base towards the rear of the unit until seated. See Figure 2-8.

12. Replace the five cover screws. See Figure 2-3.

13. Replace the following cables that were removed in Step 4:

    - Main power cable
    - Monitor power cable
    - Keyboard cable
    - Monitor cable

14. Attach the male end (the end with locking posts) of the transceiver drop cable to the D-connector of the EXOS 205 (which is now accessible from the outside of the PC) and secure it by moving the slide latch as shown in Figure 2-9.

15. Attach the female end (the end with slide latch) of the transceiver drop cable to the transceiver on the network.

Following Step 15, the installation of the EXOS 205 Ethernet front-end processor in the PC and its attachment to the network is complete. You are now ready to run the diagnostics, which are described in the next section.

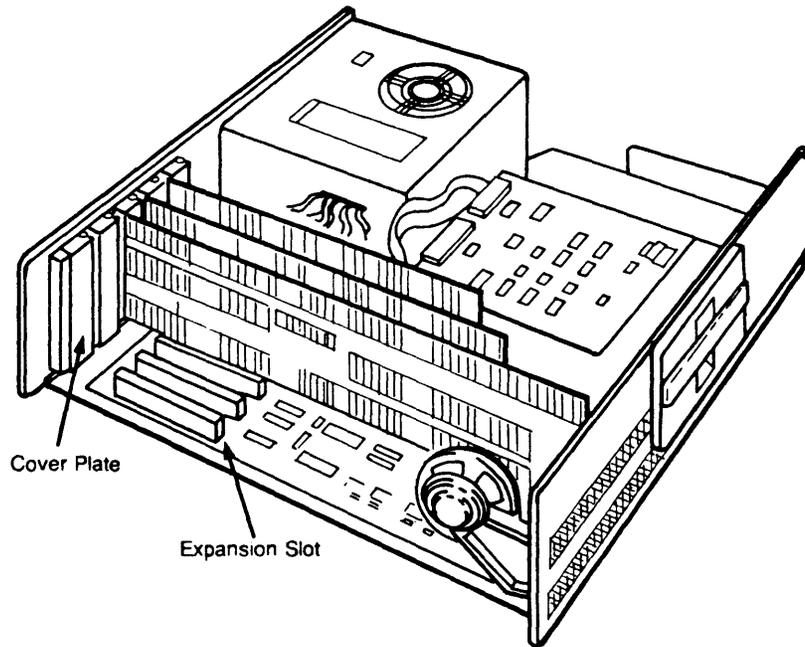Cover Plate

Expansion Slot

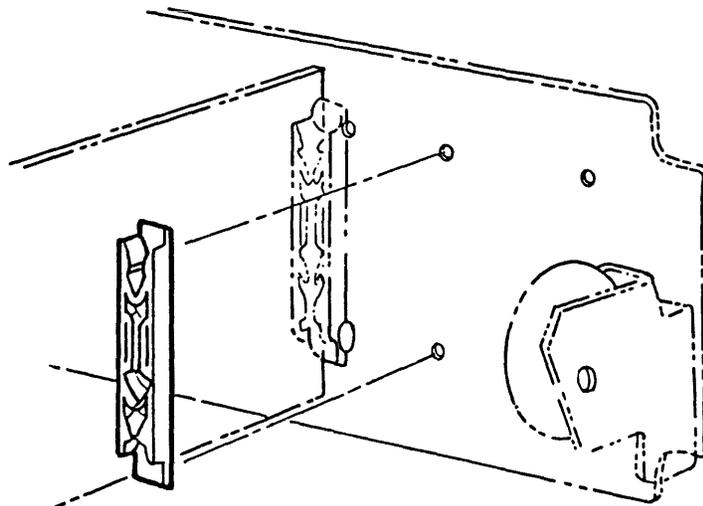**Figure 2-5: The Expansion Slots**

Figure 2-6: Installing the Card Guide
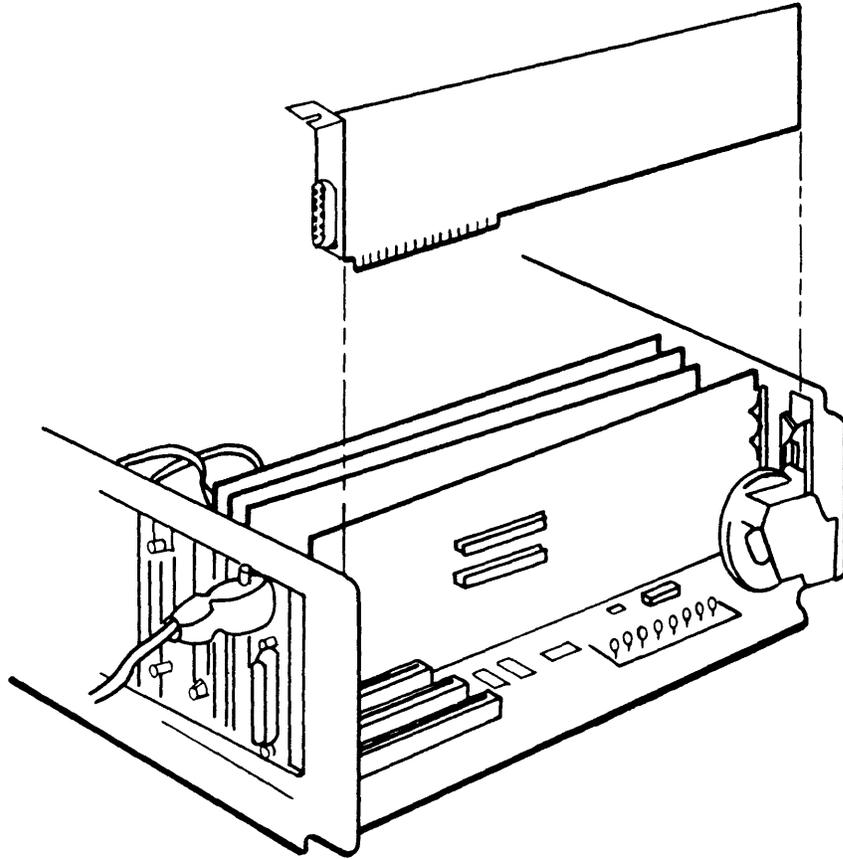
Figure 2-7: Installing the EXOS 205
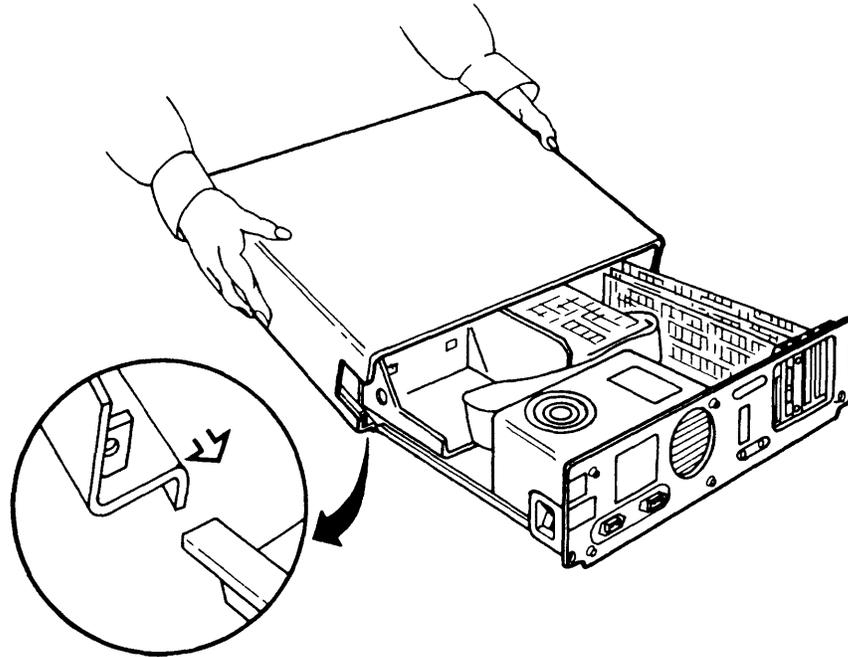
Figure 2-8: Replacing the System Unit Shell

Push to close
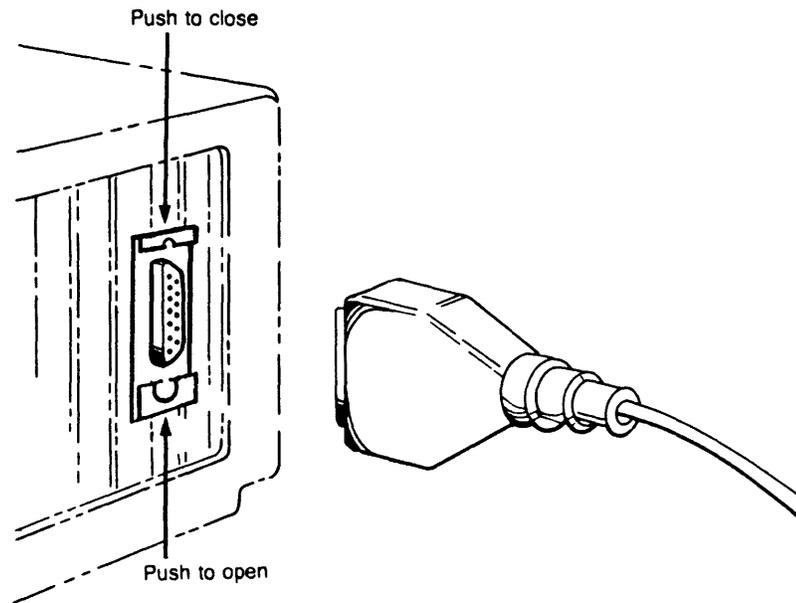
Push to open

Figure 2-9: Attaching the Transceiver Drop Cable

2.3. RUNNING THE INSTALL PROGRAM AND DIAGNOSTICS

The EXOS 205 installation diskette provided with the EXOS 205 board contains the *install* program and diagnostics. These diagnostics are divided into two sets: one set is executed by the host PC; the other set is executed by the 80186 CPU on the EXOS 205. These sets of tests exercise the on-board RAM, the 82586 Ethernet Controller, the Ethernet Serial Interface chip, the connected transceiver, and the on-board Ethernet PROM. In addition, the diagnostics run three interrupt tests.

A step-by-step procedure to run the diagnostics is given below. Naturally, before running the diagnostics the EXOS 205 front-end processor must have been installed as described in Section 2.2.

1. Boot your system from DOS.

2. Check if your boot floppy (or hard disk if applicable) has the system file named CONFIG.SYS with the entry DEVICE = ANSI.SYS. If this file is present, skip to Step 3.

    If not already present, create the system file named CONFIG.SYS with the following entry and reboot the system.

    DEVICE = ANSI.SYS

3. Insert the EXOS 205 installation diskete in one of the vacant drives.

4. Enter the following command to input configuration information prior to running the diagnostics. Following Step 7, the configuration information is saved to the *Configuration File* on the currently logged drive.

    A> *x*:**install**

    IMPORTANT: *x* in the above command must be replaced by the drive name in which the EXOS 205 installation diskette was loaded in Step 3.

    The system then displays the Installation Menu:

INSTALLATION MENU			
Item	**Type**	**Current Setting**	**Selections**
1 System	list	PC	0 PC 1 AT 2 other
2 Window Address	value	A0000	
3 Window Size	list	16K	0 16K 1 128K
4 I/O Address	value	310	
5 Interrupt Level	list	2	
6 Update Config file	execute		
7 Run Diagnostics	execute		
Enter Item (number or name)			

5. If the current settings for items 1 through 5 are correct, then skip to Step 6. Otherwise, select or specify the values noted in Step 1 of the board installation procedure (Section 2.2) for these items, as described below.

    a. Type the item number, name, or abbreviated name terminated by a carriage return. (An abbreviated name is one or more leading characters that are unique for an item name.)

    b. In response to system prompt, enter the selection number, name, or abbreviated name for items 1 and 3. Note that a <cr> leaves the current setting unchanged.

    c. In response to system prompt, enter legal values for items 2, 4, and 5. (See Section 2.4.)

6. The configuration is now complete. Type 6 or the word *update* to update the Configuration file.

7. Type 7 or the word *run* to run diagnostics.

    At this point, the system displays the test screen that shows various test names, associated parameters, and a zero error count for each test. The system then begins running the diagnostics. For each test, the test data and status flash in the lower part of the screen.

    Finally, one of the following messages appears on the screen:

    Tests completed: PASSED

    Tests completed: FAILED

    The message is followed by the DOS prompt indicating that control has returned to the operating system.

If the diagnostics failed, you should re-examine the config data, and run the procedure again. If the diagnostics still failed, you should contact Excelan for assistance. Refer to Chapter 3 for service information.

If the diagnostics passed, the EXOS 205 is healthy and it is installed correctly. You can now install the protocol software, such as Excelan's EXOS 8011 or EXOS 8051. Refer to the applicable protocol software reference/user manual for further details.

At the conclusion of Step 7 the configuration information entered in Step 5 is written to the file *\xln\hardware\excelan.hdw* on the currently logged drive. A detailed description of the *Configuration File* is provided in Appendix C.

2.4. RECONFIGURING THE EXOS 205

As shipped from the factory, the EXOS 205 is configured with the following defaults. These defaults can be changed as described in Sections 2.4.1 through 2.4.3. (Note that these are the only parameters that can be changed while maintaining compatibility with the NX-based protocol software supplied by Excelan.)

Memory: A0000 - A3FFF (hex) – The 16-Kbyte window to access the on-board RAM

I/O space: 310 - 317 (hex)

Interrupt: Level 2

In addition, a Signal Quality Error (SQE) test is also disabled on the EXOS 205 board when it is shipped from the factory. This test can be enabled as described in Section 2.4.4.

2.4.1. Changing the Window Location and Size

No jumper changes are required to change the window location. The window location is determined entirely by the software. The location can be specified during the *install* procedure or it can be edited in the *Configuration File*.

The default window size is 16 Kbytes. This, incidentlly, is the size required by the Excelan's NX kernel. Consequently, if the NX software is to be used, no software or jumper changes are required.

User-written software has the option of using either a 16-Kbyte window or a 128-Kbyte window. The window size can be jumper-selected as follows:

To use a 16-Kbyte window, connect pins 1 and 2 of each of the following jumpers:

J17, J18, J19, J20, J21, and J22. (This is the default configuration.)

To use a 128-Kbyte window, connect pins 2 and 3 of each of the following jumpers:

J17, J18, J19, J20, J21, and J22.

To install the jumpers, first cut the default jumper traces on the solder side of the board and then solder links between indicated pins on the component side. See Section 3.3 for information on jumper locations.

2.4.2. Changing the I/O Space

The EXOS 205 uses a block of eight addresses in the PC's I/O space. The default block is 310-317 (hex). If necessary, a different I/O block can be selected by reconfiguring jumpers J7 and J9 as shown in Table 2-1. In such a case, the *Configuration File* must be modified to reflect the changes – either by editing or by running the *install* procedure.

Table 2-1: Jumpers for I/O Address Configuration

For I/O Block	Link Pins of		
	J7	J9	
300-307	1-16	1-2	
308-30F	1-16	2-3	
310-317	2-15	1-2	(Default)
318-31F	2-15	2-3	
320-327	3-14	1-2	
328-32F	3-14	2-3	
330-337	4-13	1-2	
338-33F	4-13	2-3	
340-347	5-12	1-2	
348-34F	5-12	2-3	
350-357	6-11	1-2	
358-35F	6-11	2-3	
360-367	7-10	1-2	
368-36F	7-10	2-3	
370-377	8-9	1-2	
378-37F	8-9	2-3	

To install the jumpers, first cut the default jumper traces on the solder side of the board and then solder links between the indicated pins on the component side. See Section 3.3 for information on jumper locations.

2.4.3. Changing the Interrupt Level

The EXOS 205 uses one interrupt level on the PC . Factory setting is interrupt level 2, which is set by the presence of jumper J10. If this causes any conflict with the host PC's configuration, the interrupt level can be changed to any level from 2 to 7. To change the interrupt level, remove jumper J10 and install jumper J11, J12, J13, J14, or J15 as applicable. See Table 2-2.

Once again, the *Configuration File* must be modified to reflect the changes.

Table 2-2: Jumpers for Selecting Interrupt Level

To Select Interrupt Level	Install Jumper	
2	J10	(Default)
3	J11	
4	J12	
5	J13	
6	J14	
7	J15	

2.4.4. Selecting the Transceiver Type

As shipped from the factory the board is configured to run with an Ethernet Version 1.0 transceiver. The EXOS 205 board can also be configured to operate with an Ethernet Version 2.0 or IEEE 802.3 transceiver.

When configured to operate with a Version 1.0 transceiver, the board does not check the SQE (Signal Quality Error, or heartbeat) test. (This test is performed after every transmission by an IEEE 802.3 or Ethernet Version 2.0 transceiver. It checks whether the collision detection circuitry in the transceiver is functional.) Also, when configured in the Version 1.0 mode, the output is DC-coupled; that is, the idle voltage is nonzero.

When configured to operate with a Version 2.0 or IEEE 802.3 transceiver, the SQE test is enabled. Also, when in this mode, the output is AC-coupled; that is, the idle voltage is zero.

The transceiver configuration is defined by jumper J2. If this jumper is present, the board is in Version 1.0 mode (the factory setting). If this jumper is absent, the board is in Version 2.0/IEEE 802.3 mode.

3.1. INTRODUCTION

Prior to shipping, each EXOS 205 Ethernet front-end processor board is very thoroughly tested and exercised both at the component level and at the system level. However, since it is not possible to simulate every possible situation that might exist on the network, occassionally you might encounter performance problems with the EXOS 205. For such rare cases, Excelan provides prompt technical service assistance. After hearing from you, our well-trained technical support personnel will discuss the problem with you over the telephone. Quite often, the problem is a simple one and can be resolved during such discussions. At other times, it may be necessary for you to ship the board to factory for repair or replacement.

This chapter provides the following:

- Information on how to obtain the service assistance

- An assembly diagram of the EXOS 205 that shows locations for the EXOS 205 serial number and various jumpers

- Schematic diagrams

3.2. HOW TO USE SERVICE ASSISTANCE

The following is a summary of procedure for using Excelan's service assistance. For detailed information, please refer to the "Warranty/Service Information" document shipped with your EXOS 205.

If you encounter any performance problem with your EXOS 205 and you or your system administrator cannot resolve it, please contact

Excelan Service Center
2180 Fortune Drive
San Jose, CA 95131
(408) 434-2285
(408) 434-2300

For prompt assistance the Customer Service will require the following information. Please have it ready.

- Company name

- Technical contact

- Company address

- Telephone number

- Product name, part number, and serial number

- Customer purchase order number or service contract number

The Customer Service staff will then discuss the problem you are experiencing with the EXOS 205. They will assist you in isolating the fault and fixing it if possible.

If the problem cannot be fixed, the service staff will provide you with a Return Material Authorization (RMA) number. You should then securely pack the unit in its original or similar packing and return it to to Excelan at the address given above. Please refer to the "Warranty/Service Information" document for detailed service terms.

At this point, depending on whether or not the unit is under warranty or extended warranty, the service staff will be able to advise you of any applicable charges for the service.

3.3. EXOS 205 JUMPER LOCATIONS

Figure 3-1 provides the component-side view of the EXOS 205. The figure shows the location for various jumpers. The board part number is printed on a label on the solder side.

Table 3-1 provides the jumper configuration information for the EXOS 205.

3.4. EXOS 205 SCHEMATIC DIAGRAMS

Figure 3-2, spanning five pages, provides schematic diagrams for the EXOS 205.

Table 3-1: EXOS 205 Jumpers

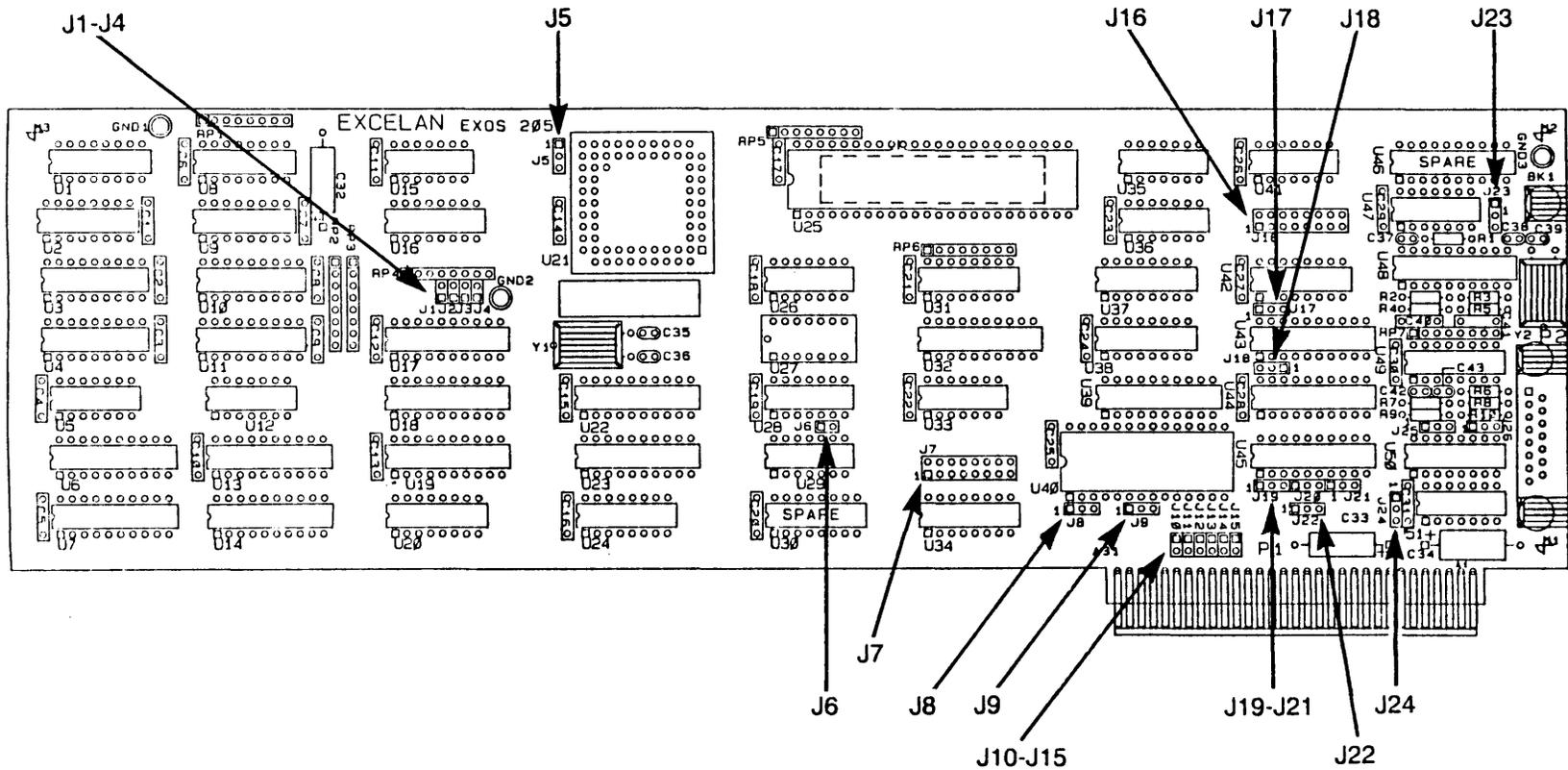| Jumper	Function (when installed)	Default	(Pins) connected
J1	Reserved.		
J2	Version 1.0 transceiver	Enabled	(in)
J3	Reserved.		
J4	Reserved.		
J5	Enable timer0 to NMI for software refresh	Disabled	(2-3)
J6	Enables the host Boot EPROM.	Disabled	(out)
J7	(8 jumpers) Selects the port address of the board (300 to 370 in steps of 10)	310H	(2-15)
J8	2716/32 or 2764/128 EPROMs as Boot PROM	2716/32	(1-2)
J9	Selects Low Digit of Port Address (0-7 or 8-F)	300H	(2-3)
J10	Enables IRQ2 as host interrupt	Enabled	(in)
J11	Enables IRQ3 as host interrupt	Disabled	(out)
J12	Enables IRQ4 as host interrupt	Disabled	(out)
J13	Enables IRQ5 as host interrupt	Disabled	(out)
J14	Enables IRQ6 as host interrupt	Disabled	(out)
J15	Enables IRQ7 as host interrupt	Disabled	(out)
J16	(8 jumpers) Selects starting address of Boot PROM (C0000 to DC000 in steps of 4000)	D0000	(5-12)
J19,20,21	Window size in host space 16K,128K	16K	(1-2) all
J17,18,22		128K	(2-3) all
J23	Enables parity error to interrupt host	Enabled	(1-2)
J24	Enables / Disables wait states during refresh (Enable for IBM PC AT)	Enabled	(1-2)

J1-J4   J5   J16   J17   J18   J23

EXCELAN EXOS 205

SPARE

J6   J7   J8   J9   J19-J21   J24

J10-J15   J22

Figure 3-1: EXOS 205 – Component-side view   3 - 3
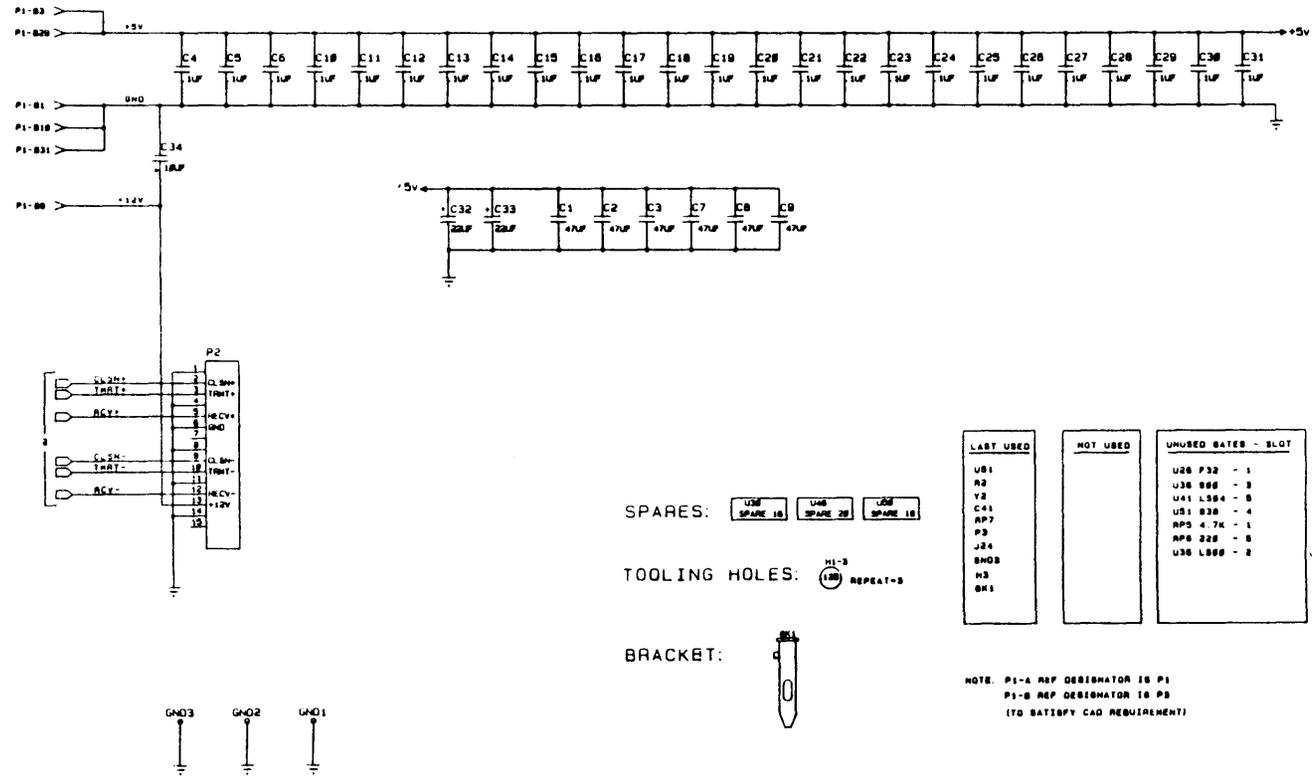
Figure 3-2: EXOS 205 Schematics

SPARES:

U3# SPARE 1#	U4# SPARE 2#	U## SPARE 1#

TOOLING HOLES: REPEAT=3

BRACKET:

LAST USED	NOT USED	UNUSED GATES - SLOT
U#1		U2# F32 - 1
R2		U3# S## - 3
Y2		U41 LS#4 - 5
C41		US1 #3# - 4
RP7		RP5 4.7K - 1
P3		RP6 22# - 5
J24		U3# LS## - 2
#HO#		
H3		
#H1		

NOTE: P1-A REF DESIGNATOR IS P1
P1-B REF DESIGNATOR IS P3
(TO SATISFY CAD REQUIREMENT)

EXCELAN
EXOS 205/PC

D	8600012-00	G
2/##/##		1 OF #

Figure 3-2: EXOS 205 Schematics (contd.)

Figure 3-2: EXOS 205 Schematics (contd.)

Figure 3-2: EXOS 205 Schematics (contd.)

Figure 3-2: EXOS 205 Schematics (contd.)

A.1. INTRODUCTION

The EXOS 205 Ethernet front-end processor board conforms to the standard IBM PC form factor (8-bit). It installs easily in any vacant expansion slots in the PC. The board is compatible with IEEE 802.3 and Ethernet (Version 1.0 and 2.0) transceivers.

Detailed EXOS 205 features and specifications are given in the following section.

A.2. FEATURES AND SPECIFICATIONS

General Features

CPU:	Intel 80186 operating at 8 MHz
Memory:	128 Kbytes dual-port RAM with parity check
Compliance:	IEEE 802.3; Ethernet Version 1.0 and 2.0

Host Interface

Bus:	8-bit IBM PC/XT/AT Compatible

Physical Dimensions

13.13 in. x 4.2 in. – conforms to IBM PC form factor (8-bit).

Power Requirements

+5V:	2.0 Amp Typical	2.2 Amp Maximum
+12V:	0.3 Amp Typical	0.5 Amp Maximum

Operating Environments

Temperature:	0° to 50°C
Relative Humidity:	0% to 90% Non-condensing

B.1. INTRODUCTION

The EXOS 205 board is compatible with IEEE 802.3 and Ethernet (Version 1.0 and 2.0) transceivers. Therefore, all standard transceiver cables available commercially are suitable for use with the EXOS 205.

For reference, the pin assignment for the cable connector on the EXOS 205 is shown in Table B-1; the pin numbers are illustrated in Figure B-1.

Table B-1: EXOS 205 pin assignment for the Transceiver Cable Connector

Pin No.	Assignment	Pin No.	Assignment
1.	GND	9.	Collision –
2.	Collision +	10.	Transmit –
3.	Transmit +	11.	GND
4.	GND	12.	Receive –
5.	Receive +	13.	Power
6.	Power Return	14.	GND
7.	Unused	15.	Unused
8.	GND		

NOTE: Pins 1, 4, 8, 11, and 14 are inner shield grounds. The outer shield should be terminated to the connector shell.
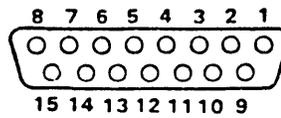
```
    8  7  6  5  4  3  2  1
 / O  O  O  O  O  O  O  O \
 \  O  O  O  O  O  O  O  /
    15 14 13 12 11 10 9
```

Figure B-1: Pin Layout for Transceiver Connector on the EXOS 205

C.1. INTRODUCTION

The file \xln\hardware\xcelan.hdw is the *Configuration File* for DOS systems. This file contains configuration information about each Excelan board that is installed in the system.

The configuration information for each board consists of several single-line entries. Each line contains three fields: a keyword field, a value field, and an optional comments field. On any one line, the keyword field must be separated from the value field by one or more spaces or tabs. Similarly, a value field must be separated from the comment field by one or more spaces or tabs. The keywords and values cannot have any embedded spaces or tabs. Comments must begin with a semicolon (;).

Numeric values without any suffix are decimal values; those suffixed by the letter "H" are hexadecimal values. Upercase and lowercase letters are not differentiated.

The set of entries for any one board must begin with the "board identification" line (for example, B205 1) and end with the "host identification" line (for example, HOST IBM_PC).

Each keyword is described below.

B205   The EXOS 205 board. Legal values are the integers 1 to 4. Each board must have a unique value.

      For DOS systems running the EXOS 8051 protocol software, the value for B205 must be 1.

B225   The EXOS 225 board. Legal values are the integers 1 to 4. Each board must have a unique value.

IOBASE The base I/O block address for the board. Consult your PC Technical Reference Manual for legal values.

MEMBASE The base address for the board. This is a segment address. For the EXOS 205 board, this must be a 16-Kbyte boundary in the PC's address space.

WINDOW The EXOS 205 window size, in kilobytes. Legal values are 16 and 128. This keyword is not used for the EXOS 225 board.

SIGNAL The host interrupt level. Legal values are the integers 2 to 7.

DISPLAY The monitor display type. Legal values are MONOCHROME, for the hosts that have a monochrome monitor adaptor board, and COLOR, for the hosts that have a color or graphics monitor adaptor board.

HOST The host PC type. Legal values are IBM_PC, IBM_AT, and OTHER.

IBM_PC type applies to IBM PC, IBM PC XT, and compatibles that handle expansion memory parity in a way similar to the IBM PC.

IBM_AT type applies to IBM PC AT and compatibles that handle expansion memory parity in a way similar to the IBM PC AT.

OTHER type applies to WYSE and other IBM PC compatibles that do not handle parity.

EXAMPLE

An example of an entry in the *Configuration File* is shown below. This entry is for one EXOS 205 board with an I/O base address of 310H, a memory base address of 0A000H, and a window size of 16 Kbytes, and it uses an interrupt level 2. The board is installed in an IBM PC XT.

```
B205        1
IOBASE      310H
MEMBASE     A000H
WINDOW      16
SIGNAL      2
DISPLAY     MONOCHROME
HOST        IBM_PC
```