IBM ARTIC186
8-Port PCI Adapter
Guide to Operations

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Important Safety

See “Safety Information” on page B-2 before installing or removing an adapter.

Note

Before using this information and the product it supports, be sure to read the information under Appendix B, “Notices” on page B-1.

Third Edition (July 1999)

This edition replaces and makes obsolete the previous edition, 87H3541, and the October 1998 edition.

Contents

About This Book

This book contains the following information for the ARTIC186 8-Port PCI Adapter:

- Description of the adapter
- Installation requirements and instructions
- Configuration table and information
- Jumper setting information
- Problem determination procedures
- Optional cables and connector information
- Lists of replacement parts

Who Should Read This Book

This book is written for an experienced computer operator or a person who sets up, uses, or programs the ARTIC186 8-Port PCI Adapter with IBM computer products.

Related Information

- Operating and installation documentation provided with your personal computer system.
- Reference, service, and diagnostic documentation available for your computer system.
- Operating system-specific information, for example DOS and Windows NT.

Chapter 1. Product Description

The ARTIC186 8-Port PCI Adapter, with supporting software, enables the attachment of a PCI-bus-compatible personal computer system to have up to eight serial communications links through optional cables.

Note: The ARTIC186 8-Port PCI Adapter cannot be installed in a PCI slot that supports spread spectrum.

The ARTIC186 8-Port PCI Adapter has its own microprocessor and memory, allowing it to perform communications functions.

Adapter Part Numbers

Service replacement parts are called field-replaceable units (FRUs) and must be ordered by their part numbers. The following lists the part numbers for the FRUs associated with the ARTIC186 8-Port PCI Adapter. For cable part numbers, see Table 5-1 on page 5-1. For wrap-plug part numbers, see "Diagnostic Wrap Plugs" on page 4-1.

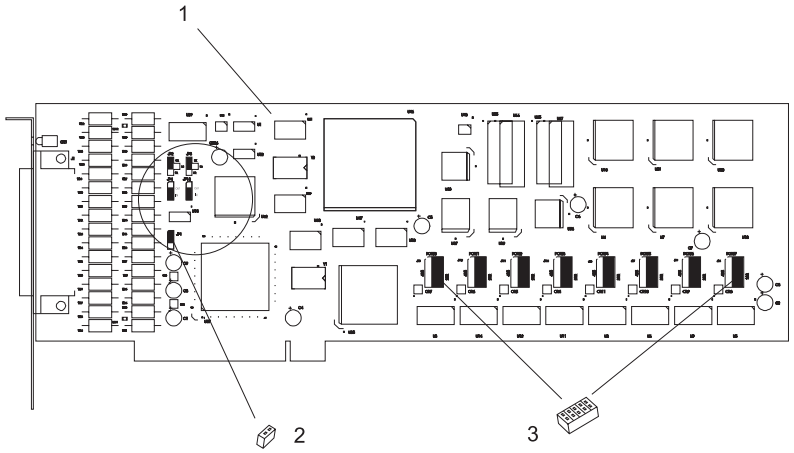


Table 1-1. Part Numbers

Index	Description	Part Numbers
1	ARTIC186 8-Port PCI Adapter	87H3670
2	Jumper, 2-position (included with miscellaneous parts kit)	
3	Jumper, 2x5-position (included with miscellaneous parts kit)	
Not shown	Miscellaneous parts kit (contains indexes 2 and 3)	53G0719

Features and Functions

The ARTIC186 8-Port PCI Adapter provides:

- An 80C186 microprocessor
- 1 MB of dual-ported, dynamic random-access memory (DRAM)
- 16 KB of read-only memory, providing power-on self-test and diagnostic functions
- Eight communications ports of RS-232 or RS-485 interface (or combinations of both) that can, through optional cables, support one port at a maximum of 38.4 kbps duplexed, or all eight ports at up to 9.6 kbps duplexed

  Note: Because the RS-422 interface is a subset of the RS-485 interface, applications that use RS-422 are compatible with applications that use RS-485.
- Multiple card installation capability

Optional Cables

The ARTIC186 8-Port PCI Adapter has two cable options. The two options are electrically the same, and both provide connectors for eight devices. They do, however, offer different physical characteristics. For more information, see Chapter 5, “Cables and Connectors.”

Specifications

Physical

Length: 342.9 millimeters (13.5 inches)
Width: 17.5 millimeters (0.7 inches)
Height: 106.7 millimeters (4.2 inches)
Weight: 23 grams (0.5 pounds)

Environment

Air temperature:

Operating: 0 to 60°C (32 to 140°F)
Non-Operating: 0 to 60°C (32 to 140°F).

Humidity:

Operating: 5% through 90%.

Electrical

Optimum Voltages:	Maximum Current:
+4.8 V dc to +5.25 V dc	1.5 A
-5.5 V dc to -4.5 V dc	0 mA
+11.3 V dc to +12.7 V dc	175 mA
-10.8 V dc to -13.2 V dc	150 mA

Manuals and Software Support

Manuals and software support (operating-system and diagnostic programs) are available for downloading at:

http://www.radisys.com/support/artic/ibm

Chapter 2. Installation Requirements and Instructions

This chapter provides the following information.

- Hardware requirements
- Setup and preparation instructions for installing the ARTIC186 8-Port PCI Adapter
- Installation instructions
- Download instructions for the software/microcode

Hardware Requirements

The ARTIC186 8-Port PCI Adapter requires the following hardware:

- A full-length, 5-volt, 32-bit slot. The ARTIC186 8-Port PCI Adapter can be installed in any PCI-compliant computer.

  Notes:

  1. The ARTIC186 8-Port PCI Adapter cannot be installed in a PCI slot that supports spread spectrum.
  2. The FCC statement in this manual may be different than the FCC statement in the manual that came with your system. Use the FCC statement in this manual for the system unit that will contain the ARTIC186 8-Port PCI Adapter.

- One of the following IBM ARTIC cables (or equivalent). The cable dimensions are listed in Chapter 5, “Cables and Connectors.”
  - 8-Port Direct Modem Attach Cable
  - Portmaster 8-Port Cable

Hardware Tools

- Medium-size flat-blade screwdriver
- Optional:
  - Medium screwstarter
  - 3/16-inch nutdriver
  - 1/4-inch nutdriver.

Preparing for Installation

To prepare for installing the ARTIC186 8-Port PCI Adapter, complete the Configuration Record table (Table 2-1 on page 2-2) as you proceed through this chapter and review the following.

- How to handle static-sensitive devices (page 2-2)
- Jumper setting information (starting on page 2-3)
- Interface selection information (page 2-6)

Configuration Records

Record the specifics of your configuration in Table 2-1. The information you record is referenced whenever you run the diagnostics for the ARTIC186 8-Port PCI Adapter.

Table 2-1. Configuration Records

	8-Port PCI Adapter			
Description	**0**	**1**	**2**	**3**
Port 0 (232 or 485)	___	___	___	___
Port 1 (232 or 485)	___	___	___	___
Port 2 (232 or 485)	___	___	___	___
Port 3 (232 or 485)	___	___	___	___
Port 4 (232 or 485)	___	___	___	___
Port 5 (232 or 485)	___	___	___	___
Port 6 (232 or 485)	___	___	___	___
Port 7 (232 or 485)	___	___	___	___

Handling Static-Sensitive Devices

Components for your ARTIC186 8-Port PCI Adapter can be damaged by static discharges. To prevent this damage, your ARTIC186 8-Port PCI Adapter is wrapped in an anti-static bag. Observe the following precautions when handling the adapter:

- Keep the adapter in its anti-static bag until you are ready to install it.
- Make the least possible movement with your body to minimize the electrostatic charges created by contact with clothing fibers, carpets, and furniture.
- If possible, keep one hand on the computer chassis when you are inserting or removing an adapter. Always turn the computer off before removing an adapter from the system unit.
- Do not touch the printed circuit, connector pins, or components. Where possible, hold the adapter by its plastic end pieces or by its edges, but do not touch the metal edge connectors.
- Do not place the adapter on the system unit cover or on a metal table. The cover and metal table increase the risk of damage because they make a discharge path from your body through the adapter.

Jumpers

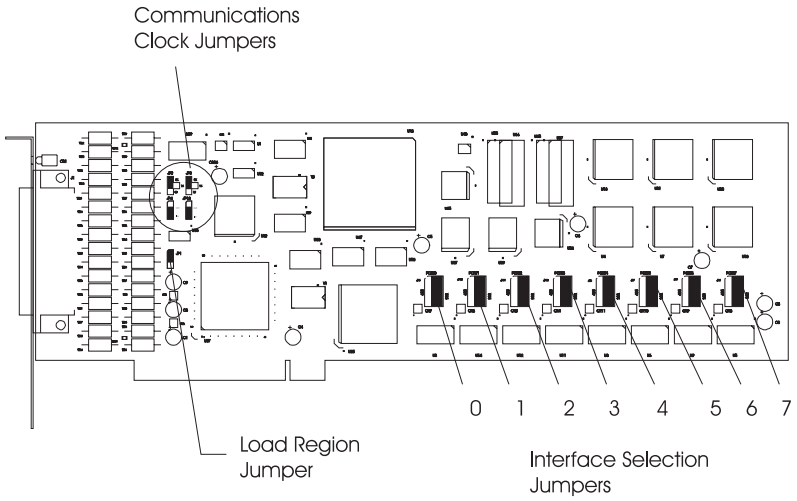


Figure 2-1. Location of Jumpers

Load Region Jumper: The ARTIC186 8-Port PCI Adapter can be configured to operate in either of two regions of memory: below 1 MB or above 1 MB. During power-on self-test (POST), the adapter requests memory and other system resources.

The operating system being used determines which window is needed. For example, the DOS operating system cannot directly access memory devices above 1 MB. On the other hand, operating systems, such as Windows NT®, operate in the protected mode and can access memory devices in the regions above 1 MB.

The following is JP1, the load-region jumper.

	Window below 1 MB: The adapter requests memory resources below 1 MB. Use this setting if the computer is operating in a DOS environment
	Window above 1 MB: The adapter requests resources above 1 MB. Use this setting for operating systems that operate in the protected mode (such as Windows NT).

Set Communication Clock Jumpers

Set the communication-clock jumpers for port 0 (JP2 and JP4) and port 1 (JP3 and JP13) as shown. The jumper settings are described beginning on page 2-4.

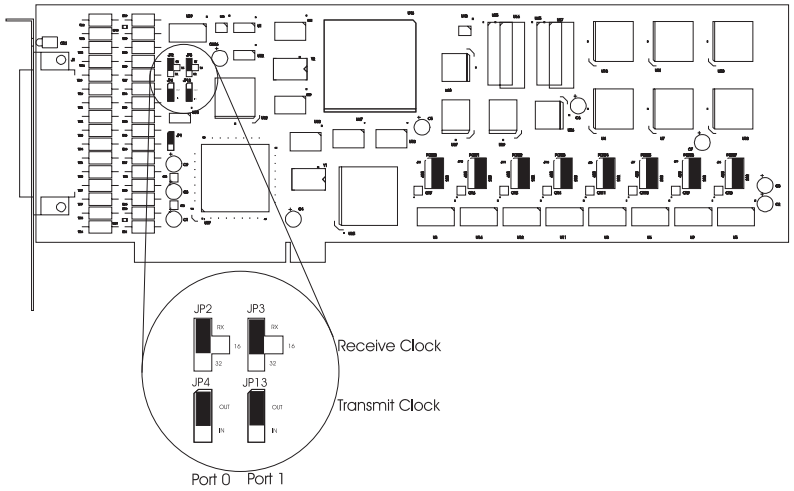
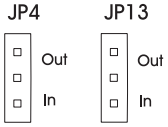


Figure 2-2. Communication Jumper Settings

Transmit Clock Jumpers: The transmit-clock jumpers determine whether the transmit clocks for ports 0 and 1 are an output (the data-terminal equipment provides the clock) or an input (the data-communications equipment provides the clock).

The following shows the settings for transmit clock jumpers.



Description	Port 0 JP4	Port 1 JP13
Output clock to external device		
Input clock from external device		

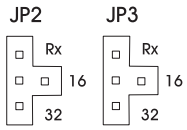
Receive Clock Jumpers: The receive-clock jumpers determine whether the external receive clock for ports 0 and 1 is driven by:

- A remote clock
- The transmit clock divided by 16
- The transmit clock divided by 32

Note: If the transmit clock for port 0 or 1 is set as the input clock, the corresponding receive-clock jumper (JP2 or JP3) must be set to the remote-clock position.

If the transmit clock for port 0 or 1 is set as an output clock, the corresponding receive-clock jumper (JP2 or JP3) must be set to the divided-by-16 or divided-by-32 position.

The following shows the settings for the receive-clock jumpers.

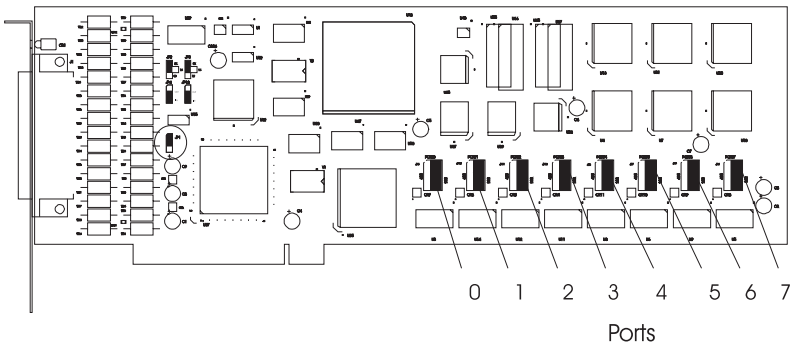


Description	Port 0 JP2	Port 1 JP3
Remote clock		
Transmit clock divided by 16		
Transmit clock divided by 32		

Interface Selection Jumpers

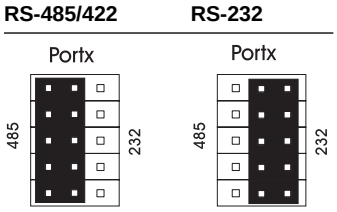
The ARTIC186 8-Port PCI Adapter has a set of jumpers used to select the serial interface used by each port. The interface is selected on a port-by-port basis for each of the eight ports. The jumper selects either an RS-232 or RS-485/422 interface for a given port; the default position is RS-232.

The following shows the location of the interface-selection jumpers.



Note: RS-422 is a subset of RS-485.

Set Port Protocol (RS-232 or RS-485): Position the shunt (a 2x5-position jumper) to select the interface: RS-485 or RS-232. Each port can be configured independent of the setting of the other ports.



Installation

The hardware installation process for the ARTIC186 8-Port PCI Adapter includes completing the following procedures:

- Installing the ARTIC186 8-Port PCI Adapter in the system unit
- Downloading the operating system support and diagnostic programs (page 2-8)
- Running diagnostics to verify installation (page 2-9)
- Connecting the optional cable (page 2-9)
- Setting up configuration files (page 2-9)

Step 1. Installing the ARTIC186 8-Port PCI Adapter

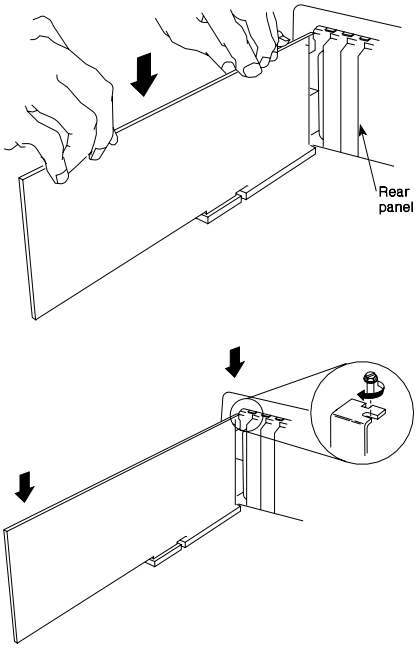
Use the following steps as general information for installing your ARTIC186 8-Port PCI Adapter. For specific adapter installation instructions, consult the operating manual or the installation and setup manual for your specific personal computer system.

1. Turn the computer off.
2. Unplug the power cords from the wall outlets.
3. Remove the cable-retaining brackets from the rear of the system unit and display.
4. Disconnect all cables from the rear of the system unit.
5. Use a flat-blade screwdriver or 1/4-inch nutdriver to remove the cover mounting screws (if present) from the system unit.
6. Remove the system unit cover.
7. Locate an available expansion slot in your system unit.

   | **Note:** The ARTIC186 8-Port PCI Adapter cannot be installed in a PCI slot that supports spread | spectrum.

8. Use a flat-blade screwdriver or a 3/16-inch nutdriver to remove the screw that holds the expansion-slot cover in place. Lift the expansion-slot cover from the system unit.
9. Hold the ARTIC186 8-Port PCI Adapter (still wrapped in the anti-static bag) in one hand and touch a metal part of your system unit with the other hand. This places your body, the adapter, and the system unit at the same ground potential, preventing an accidental static discharge.
10. Carefully remove the adapter from the anti-static bag. Be sure to grasp circuit boards by the edges only; do not touch the component pins or solder joints.

11. Install the adapter by holding it by the top and firmly pressing it into the expansion slot.



12. Align the slot in the card-retaining bracket with the hole in the rear panel of the system unit.
13. Insert and tighten the screw to secure the card-retaining bracket to the rear panel of the system unit.
14. If you have other adapters (or options) to install, do so now. Refer to the Operating and Installation documentation provided with your computer system if more information is required for other adapters or options.
15. Replace the system unit cover.
16. Reconnect all cables previously removed from the system unit.
17. Plug all power cords into electrical outlets.

Step 2. Downloading the Diagnostics and Operating-System Programs

Download the adapter diagnostic and operating-system support programs from:

http://radisys.com/support/artic/ibm

For telephone assistance, call: **1-800-237-5511**. At the Voice Response Unit, enter **0** (ignore all other options).

For e-mail assistance, send to: **artic@radisys.com**

Step 3. Running Diagnostics to Verify Installation

Before you continue with “Step 4. Connecting the Cable,” see “Diagnostic Testing” on page 4-2 to test the ARTIC186 8-Port PCI Adapter in an Intel-based IBM-compatible system.

Step 4. Connecting the Cable

Use the following steps to connect your optional cable.

Note: The optional cables are described on page 5-1.

DANGER

Lightning protection. Do not connect or handle the cable during a lightning storm.

1. Align the connector of the cable with the adapter connector at the rear of the system unit. It can attach to the connector only one way.
2. Firmly press the cable onto the connector.
3. Insert and tighten the screw at each side of the connector on the cable.
4. Connect your device to the other end of the cable.

You have completed the installation of the ARTIC186 8-Port PCI Adapter hardware; continue with “Step 5. Setting Up Files.”

Step 5. Setting Up Files

See Appendix A, “Special Configuration Information for DOS and OS/2” for important setup information on creating an ICAPARM.PRM file and changing the CONFIG.SYS file. The changes are necessary for the correct operation of your ARTIC186 8-Port PCI Adapter.

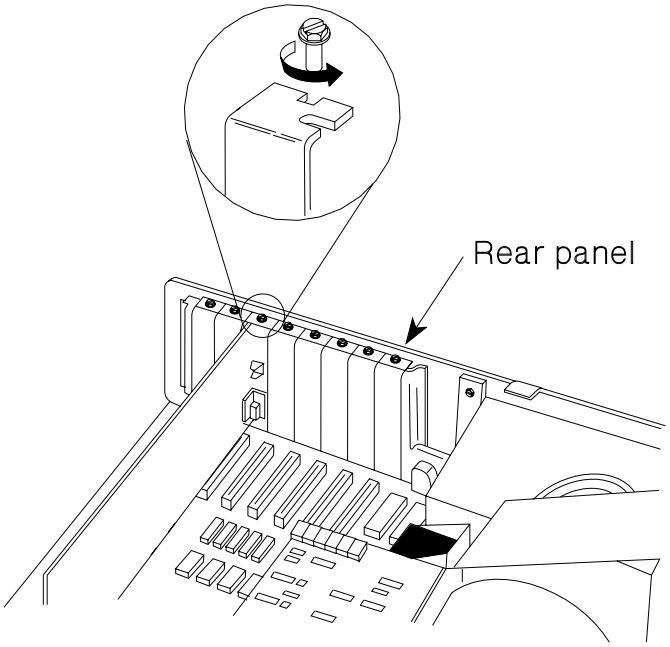
Chapter 3. Replacing the ARTIC186 8-Port PCI Adapter

Use these procedures to remove a failing adapter and to install a replacement.

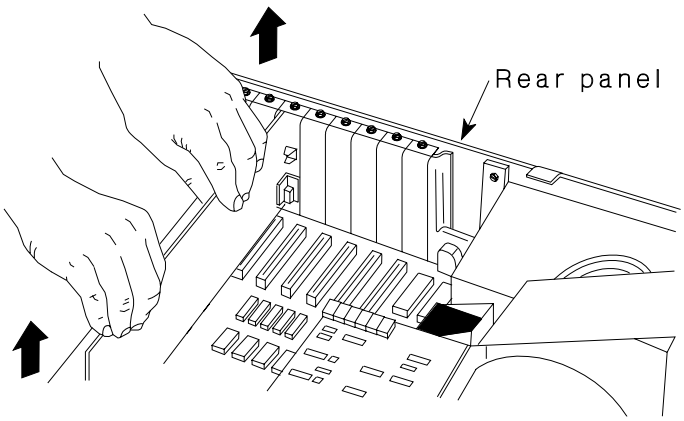
Removing the Adapter

Note: The following steps are an example of adapter removal. For instructions specific to your computer, refer to the hardware and service information that came with your computer.

1. Turn the computer off.
2. Disconnect the power cords from the electrical outlets.
3. Disconnect all cables from the rear of the system unit.
4. Remove the system unit cover.
5. Open the card retainer by loosening the screw.
6. Remove the adapter retaining screw.



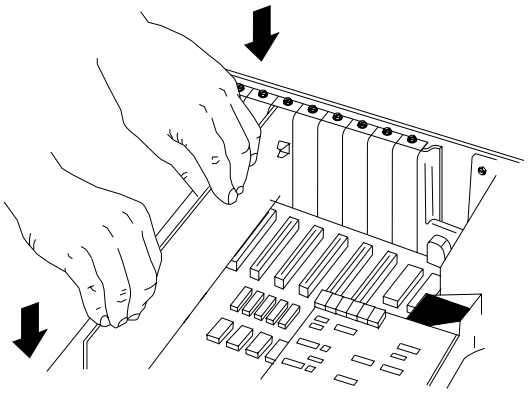
7. Grasp the adapter by the top corners and lift straight up.



Installing the New Adapter

Note: The following steps are an example of adapter replacement. For instructions specific to your computer, refer to the hardware and service information that came with your computer.

1. Make any necessary switch or jumper settings before installing the adapter.
2. Insert the adapter in an expansion slot.
3. Press down firmly on the adapter to seat the connector.



4. Install the adapter retaining screw.
5. Reinstall the system unit cover.

Chapter 4. Troubleshooting

| This chapter contains step-by-step instructions that can help you determine if your ARTIC186 8-Port PCI
| Adapter is operating properly.

- To test the ARTIC186 8-Port PCI Adapter after completing the initial installation, see “Diagnostic Testing” on page 4-2.
- To view the individual parts of the ARTIC186 8-Port PCI Adapter and obtain part numbers, see “Adapter Part Numbers” on page 1-1.

If you suspect you have a problem, do the following.

1. Check electrical connections (that is, cable connections between devices, cable connections between devices and wall outlets, and wall outlet condition).
2. Perform diagnostics.

Problem Determination

For system testing information, refer to the documentation supplied with your computer.

If you performed the diagnostic tests because of a suspected communications problem and the diagnostic program completed the testing without indicating an error, check the following:

- The computer or device at the other end (make sure that it is operating properly)
- The base adapter
- Any intermediate communication device, such as a modem
- The communication cable

Note: If you are unsure of a problem area, perform the system-unit diagnostics first before proceeding with the ARTIC186 8-Port PCI Adapter diagnostics.

Diagnostic Wrap Plugs

Diagnostic wrap tests can be performed at the connector on the adapter or at a specific port connector on the cable. Use the menu to select the location for wrap testing. The following table lists the part numbers for the cable-end wrap plug (the wrap plug used depends on the configuration of the serial port).

Table 4-1. Wrap Plugs

Description	Part Number
78-pin wrap plug	16F2478
25-pin wrap plug RS-232 (ports 0 and 1)	6425494
25-pin wrap plug RS-232 (ports 2 and 7)	09F1799
25-pin wrap plug RS-485 (ports 0 and 7)	6425494

Diagnostic Testing

The diagnostic program prompts for the type of wrap test you want to make. You can either test the adapter using the wrap plug at the 78-pin connector on the adapter, or test the individual ports using a wrap plug at the end of the cable (testing the individual ports allows you to verify the operation of the cable also).

The 78-pin connector at the adapter

If you choose to test the adapter without testing the cable, connect the 78-pin wrap plug to the connector on the adapter. After connecting the wrap plug, start the diagnostic program (if it is not already running) and respond to the test program prompts for this interface. The diagnostic program runs the tests without any further intervention.

One or more ports of the cable

If you choose to test the operation of one or more of the ports to the end of the cable, connect the appropriate wrap plug to the end of the cable for the port you want to test.

Note: Disconnect all connectors on the cable at the device end (not at the adapter) before starting any wrap tests.

After connecting the wrap plug, start the diagnostic program. When prompted, select the port you want to test. The diagnostic program runs the test on that port without further intervention.

After the program completes the tests, it prompts for the next test to run. Repeat the procedure for each port you want to test.

Chapter 5. Cables and Connectors

This chapter contains cable and connector information.

Cable Information

The following cables are available as options. The two options are functionally the same. However, the modem-attach cable provides the eight connectors on cables, and the interface cable has the eight connectors on a breakout block.

- 8-Port Direct Modem Attach Cable

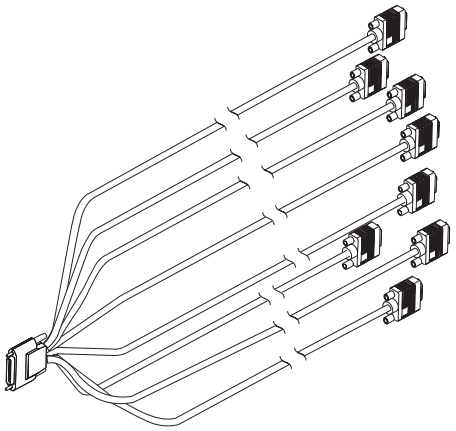
  The cable length is 1.8 meters (6 feet) long. It has a 78-pin female connector on one end and eight cables that have a 25-pin male connector at the other end.

- Multiport Interface Cable

  The cable length is 3.0 meters (9.8 feet) long. It has a 78-pin female connector on one end and eight 25-pin male connectors in a breakout box at the other end.

Note: These are the same cables that are used on the IBM ARTIC Multiport adapter.

1



2

The following are the part numbers for the cables used by the ARTIC186 8-Port PCI Adapter. For wrap-plug part numbers, see “Diagnostic Wrap Plugs” on page 4-1.

Table 5-1. Part Numbers for the Optional Cables

Index	Description	Part Number
1	8-Port Direct Modem Attachment cable	71G3494
2	Multiport Interface cable	00F5531

Connector Information

The figure below shows the pin numbering for the 78-pin and 25-pin connectors. The connectors and pin numbering are the same for the 8-Port Direct Modem Attach Cable and the Multiport Interface Cable. Table 5-2 and Table 5-3 describe the pin assignments for the 78-pin and 25-pin connectors. The signals and pins used depend on the defined interface, RS-232 or RS-485.

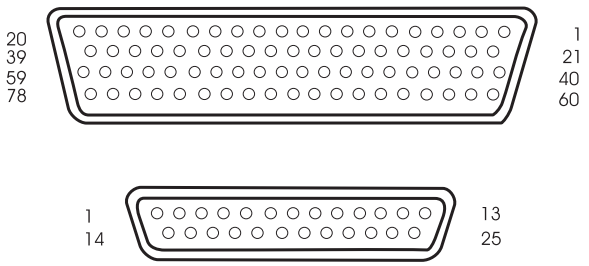


Table 5-2. Connector Pin Assignments for RS-232

Signal Name	78-Pin Connector - Ports								25-Pin Connector
	0	1	2	3	4	5	6	7	
TXD	40	04	66	69	73	55	76	58	2
RXD	02	64	28	31	54	75	57	78	3
RTS	01	63	27	30	34	16	37	19	4
CTS	61	25	48	51	15	36	18	39	5
DSR	42	06	68	71	72	33	53	14	6
GND	07	08	11	43	67	70	67	70	7
CD	22	45	09	12	74	56	77	59	8
DTR	60	24	47	50	35	17	38	20	20
RI	30	65	29	32	49	52	10	13	22
TX CLK IN	23	46							15
TX CLK OUT	41	05							24
RX CLK IN	62	26							17
HRS	21	44							23

Table 5-3. Connector Pin Assignments for RS-485.

Signal Name	78-Pin Connector - Ports								25-Pin Connector
	0	1	2	3	4	5	6	7	
TXDA	01	63	27	30	34	16	37	19	4
TXDB	40	04	66	69	73	55	76	58	2
RXDA	61	25	48	51	15	36	18	39	5
RXDB	02	64	28	31	54	75	57	78	3
GND	07	08	11	43	67	70	67	70	7

Appendix A. Special Configuration Information for DOS and OS/2

| This appendix contains special configuration information for DOS and OS/2.

| Ensure that the ARTIC186 8-Port PCI Adapter is installed in a PCI slot that is on the primary bus (PCI
| bus 0), and that the slot does not support spread spectrum.

This appendix contains information about the following.

- Creating an ICAPARM.PRM file
  - Adding an entry to the ICAPARM.PRM file for the adapter
  - Base I/O address considerations
- Changing your CONFIG.SYS file
- Ctrl+Alt+Del reset considerations
- Selecting an interrupt level for the adapter
- Shared-memory considerations.

Creating an ICAPARM.PRM File

After installing the software, you can create a special parameter file (ICAPARM.PRM) to change the defaults used to initialize the ARTIC186 adapters.

| **Note:** This file is the same one used by the IBM ARTIC Multiport and IBM ARTIC Multiport Model II
| adapters.

ICAPARM.PRM is a small file that can be created with a simple text editor. It contains the parameters for each adapter installed. The following two examples show the makeup of the parameter file—one for an installation with one adapter and the other for an installation with multiple adapters. All values are specified in hexadecimal (h).

Adding an ICAPARM.PRM File Entry

You need to add an entry to the ICAPARM.PRM file only if you want to change the following default values or the logical card numbering. All other fields are ignored for the adapter.

- MAXTASK (Maximum Task Number) = 10h
- MAXPRI (Maximum Task Priority) = 10h
- MAXQUEUE (Maximum Task Queue Number) = 50h
- MAXTIME (Maximum Task Timer Number) = 32h.

Base I/O Address Considerations

The base I/O address for PCI adapters can present a problem for ICAPARM.PRM entries; the values assigned are entirely up to the PCI BIOS. Because the lowest I/O address assigned to ISA versions of the ARTIC186 adapter was 02A0h, the values 0000 through 00FFh are used to identify PCI adapters. The lowest byte is divided into two 4-bit fields. The upper 4 bits define which PCI adapter (0 is for ARTIC PCI); the lower 4 bits define the particular instance of the adapter. Therefore, the values 0000, 0001,... 000*n* represent physical PCI adapters 0 through *n*, where *n* corresponds to the index value for the adapter in the PCI BIOS `Find Device` call.

The logical card-numbering can be changed by changing the order of the entries in the ICAPARM.PRM file (see “Example 2: Multiple ARTIC186 Adapters” on page A-3).

Example 1: One ARTIC186 Adapter

The following example shows an ICAPARM.PRM file that can be used if you have one co-processor adapter installed in your system unit:

```
Field Number  1   2    3   4   5   6   7   8   9   10    11

              #  0000  00  00  10  10  10  10  0F  E010  $
```

Field Number	Description
1	Beginning-Record Delimiter. If a # is not present, the line will be treated as a comment.
2	Base I/O address (ISA) or physical instance (PCI). For PCI adapters, the range is 0000–00FFh.
3	Shared Memory Address, Meg Value. Range 00–0Fh for all ARTIC186 adapters. (See Field 4).
4	Shared Memory Address, Page Value. Range 60–6Fh for all ARTIC186 adapters. Used with Meg Value (Field 3) to define the shared memory window used by the adapter to communicate with the system unit. The Page Value is the memory offset in 8 KB increments. A Meg Value of 00h and a Page Value of 60h results in a window address of C0000h.
5	Maximum Task Number on the adapter. Range 00–F8h; set to 10h.
6	Maximum Task Priority. Range 01–FFh; set to 10h.
7	Maximum Task Queue Number. Range 00–FEh; set to 10h.
8	Maximum Task Timer Number. Range 00–FEh; set to 10h.
9 and 10	System Unit Address to call an adapter reset. Use the values shown: 0Fh, E010h. (Not supported on this adapter.)
11	End-Record Delimiter. Value ';' or '$'. If this is the last adapter in the ICAPARM file, set to '$'; otherwise, set to ';'.

Example 2: Multiple ARTIC186 Adapters

The following example shows an ICAPARM.PRM file for two ISA and two PCI adapters in an ISA/PCI system. The order specifies the logical card number. For example, the first parameter line is for logical card 0. (For an explanation of the fields, see the field descriptions under “Example 1: One ARTIC186 Adapter” on page A-2.)

```
Field Number  1   2    3   4   5   6   7   8   9   10    11

              #  0001  00  00  10  10  10  32  0F  E010  ;
              #  06A0  00  6F  20  20  20  20  0C  E010  ;
              #  0000  00  00  10  10  50  32  0F  E010  ;
              #  02A0  00  6E  10  10  50  32  0C  E010  $
```

In this example, logical card 0 is assigned to the second physical PCI adapter (0001), and logical card 2 is assigned to the first physical PCI adapter (0000). The two ISA adapters are assigned to logical cards 1 and 3 by the I/O address

Changing Your CONFIG.SYS File

If OS/2 and Communications Manager/2 (CM/2) are being used, then one line of the CONFIG.SYS file must be modified (using a text editor) to specify the location of the ICAPARM.PRM file. Change CONFIG.SYS as follows, but substitute your specific drive paths:

```
Change:
  DEVICE=C:\CMLIB\ICARICIO.SYS

To:
  DEVICE=C:\CMLIB\ICARICIO.SYS C:\CMLIB\ICAPARM.PRM
```

Note: Make this change after CM/2 is configured. Later, if CM/2 is configured again, do not have it replace the CONFIG.SYS file. However, if you must let CM/2 change CONFIG.SYS to add new devices, just edit CONFIG.SYS again to replace the ICAPARM.PRM parameter.

If only OS/2 is being used, the following applies:

```
Change:
  DEVICE=C:\YOUR_ARTIC_DIR\ICARICIO.SYS

To:
  DEVICE=C:\YOUR_ARTIC_DIR\ICARICIO.SYS C:\YOUR_ARTIC_DIR\ICAPARM.PRM
```

Ctrl+Alt+Del Reset Considerations

If pressing the Ctrl+Alt+Del keys does not reset the ARTIC186 8-Port PCI Adapter, change the entries in the ICAPARM.PRM file as follows.

```
An existing entry where Ctrl+Alt+Del will not reset the card:
   #02A0  00 60 10 10 10 70 0F E010;

A new entry where Ctrl+Alt+Del will NOW reset the card:
   #02A0  00 61 10 10 10 70 0C 0000;
```

Selecting an Interrupt Level for the ARTIC186 8-Port PCI Adapter

The ARTIC186 8-Port PCI Adapter can be configured to operate on several hardware interrupt levels.

- For maximum performance, each ARTIC adapter in the system unit should have its own unique interrupt level.
- The next best configuration is to place all ARTIC adapters in the system on a single interrupt level.
- If neither of the preceding configurations are possible, choose an interrupt level that must be shared with a non-ARTIC adapter.

Appendix B. Notices

This information was developed for products and services offered in the U.S.A. IBM may not offer the products, services, or features discussed in this document in other countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service.

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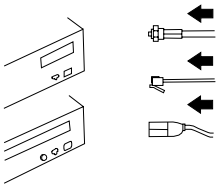
Safety Information

DANGER: Electrical current from power, telephone, and communications cables is hazardous. To avoid shock hazard, connect and disconnect cables as shown below when installing, moving, or opening the covers of this product or attached devices.

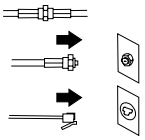
To Connect

Turn Everything OFF.

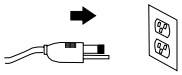
First, attach all cables to devices.



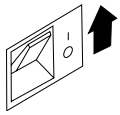
Attach signal cables to receptacles.



Attach power cord to outlet.



Turn device ON.

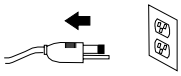


Note: In the UK, by law, the telephone cable must be connected after the power cord.

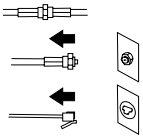
To Disconnect

Turn Everything OFF.

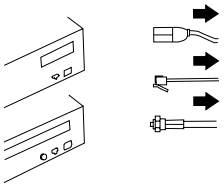
First, remove power cord from outlet.



Remove signal cables from receptacles.



Remove all cables from devices.



Note: In the UK, by law, the power cord must be disconnected after the telephone line cable.

Required Electronic Emission and Connectivity Notices

Class A Federal Communications Commission Statement

Federal Communications Commission (FCC) Statement

Note: This equipment has been tested and found to comply 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 in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. IBM is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two 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.

Industry Canada Compliance Statement

This Class A digital apparatus complies with the Canadian ICES-003.

Cet appareil numérique de la classe A conform à la norme NMB-003 du Canada.

United Kingdom

Notice to United Kingdom Users

This apparatus is approved under General Approval number NS/G/1234/J/100003 for indirect connection to public telecommunications systems in the United Kingdom.

European Union (EU) Electromagnetic Compatibility Directive

This product is in conformity with the protection requirements of EU Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility.

IBM cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of non-IBM option cards.

This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to CISPR 22 / European Standard EN 55022. The limits for Class A equipment were derived for commercial and industrial environments to provide reasonable protection against interference with licensed communication equipment.

Attention
This is a Class A product. In a domestic environment, this product may cause radio interference, in which case, the user may be required to take adequate measures.

Germany

Zulassungsbescheinigung laut Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG) vom 30. August 1995

Dieses Gerät ist berechtigt, in Übereinstimmung mit dem deutschen EMVG das EG-Konformitätszeichen - CE - zu führen.

Der Aussteller der Konformitätserklärung ist die:

RadiSys Corporation
5445 NE Dawson Creek Drive
Hillsboro, OR 97124 U.S.A.

Informationen in Hinsicht EMVG Paragraph 3, Abs. 2:

Das Gerät erfüllt die Schutzanforderungen nach EN 50082-1 und EN 55022 Klasse A.

EN 55022 Klasse A Geräte bedürfen folgender Hinweise:

Nach dem EMVG:
"Geräte dürfen an Orten, für die sie nicht ausreichend entstört sind, nur mit besonderer Genehmigung des Bundesministeriums für Post und Telekommunikation oder des Bundesamtes für Post und Telekommunikation betrieben werden. Die Genehmigung wird erteilt, wenn keine elektromagnetischen Störungen zu erwarten sind." (Auszug aus dem EMVG, Paragraph 3, Abs. 4)

Dieses Genehmigungsverfahren ist nach Paragraph 9 EMVG in Verbindung mit der entsprechenden Kostenverordnung (Amtsblatt 14/93) kostenpflichtig.

Nach der EN 55022:
"Dies ist eine Einrichtung der Klasse A. Diese Einrichtung kann im Wohnbereich Funkstörungen verursachen; in diesem Fall kann vom Betreiber verlangt werden, angemessene Maβnahmen durchzuführen und dafür aufzukommen."

Anmerkung:
Um die Einhaltung des EMVG sicherzustellen, sind die Geräte wie in den Handbüchern angegeben zu installieren und zu betreiben.

Japan

Japanese Voluntary Control Council for Interference (VCCI) Statement

This product is a Class A Information Technology Equipment and conforms to the standards set by the Voluntary Control Council for Interference by Information Technology Equipment. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

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