



**IBM ARTIC186
Model II ISA/PCI Adapter
Guide to Operations**



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Guide to Operations**

Important

Before using this information and the product it supports, be sure to read the information under Appendix B, "Notices."

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

Third Edition (August 1999)

This edition replaces and makes obsolete the previous edition, 09J8822.

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About This Book

This book contains the following information for the IBM ARTIC186 Model II ISA/PCI Adapter:

- Description of the adapter
- Installation requirements and instructions
- Jumper and switch setting information
- Adapter replacement procedures
- 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 IBM ARTIC186 Model II ISA/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 IBM ARTIC186 Model II ISA/PCI Adapter, with supporting software, can be installed in any ISA- or PCI-bus personal computer. It provides support for attaching up to eight serial communications links through optional interface boards and cables. The IBM ARTIC186 Model II ISA/PCI Adapter has its own microprocessor and memory, allowing it to perform communications functions independent of the programs running on the computer.

Part Numbers

Service replacement parts are called field-replaceable units (FRUs). FRUs are ordered by their part numbers. The following lists the part numbers for the FRUs associated with the IBM ARTIC186 Model II ISA/PCI Adapter. For the part numbers of optional components, see "IBM Options and Part Numbers" on page 5-1.

<i>Table 1-1. Part Numbers</i>	
Description	Part Numbers
IBM ARTIC186 Model II ISA/PCI Adapter	87H3751
Miscellaneous parts kit (contains 2-position jumper)	53G0719

Features and Functions

The IBM ARTIC186 Model II ISA/PCI Adapter provides:

- An 80C186 microprocessor
- 1 MB of dual-ported, dynamic random-access memory (RAM)
- 16 KB of read-only memory, providing power-on self-test and diagnostic functions
- Connectors for attaching interface boards that meet the Electrical Interface Board (EIB) standard. See "Hardware Requirements" on page 2-1 for a list of options available from IBM.
- Can be installed in an ISA or PCI slot
- Several IBM ARTIC186 Model II ISA/PCI Adapters can be installed in a single computer

Optional Cables

The interface boards attached to the IBM ARTIC186 Model II ISA/PCI Adapter determines the cable option used. For a listing of cable options, see Chapter 5, "Cables and Connectors."

Specifications

Physical

Length: 292.1 millimeters (11.5 inches)

Width: 17.8 millimeters (0.7 inches)

Height: 106.7 millimeters (4.2 inches)

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

The following shows the power used by the base adapter. The total power consumed depends on the interface boards attached.

Optimum Voltages:	Maximum Current:
+4.8 V dc to +5.25 V dc	1.07 A
-5.5 V dc to -4.5 V dc	0 mA
+11.3 V dc to +12.7 V dc	0 mA
-10.8 V dc to -13.2 V dc	0 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
- Instructions for installing the IBM ARTIC186 Model II ISA/PCI Adapter
- Download instructions for the software/microcode

Terminology Note

Base adapter refers to the IBM ARTIC186 Model II ISA/PCI Adapter, and *interface boards* refers to any interface boards that meets the EIB standard. *Adapter* refers to the assembled base adapter and interface boards.

Hardware Requirements

The IBM ARTIC186 Model II ISA/PCI Adapter requires the following hardware.

- A full-length, 5-volt, 32-bit PCI slot or a full-length, 16-bit ISA slot. The IBM ARTIC186 Model II ISA/PCI Adapter can be installed in any ISA- or PCI-compliant computer.

Note: The FCC classification for this product might differ from the FCC classification stated in the manual that came with your system. Use the FCC classification for this product as the system classification.

- One of the following IBM ARTIC interface boards:
 - 8-Port RS-232 Interface Board/A
 - 8-Port RS-422 Interface Board/A
 - Selectable Interface Board/A
 - 6-Port X.21 Interface Board/A
 - 6-Port V.35 Interface Board/A
 - ARTIC186 Model II 232/422 Interface Board
- One of the following IBM ARTIC electrical interface cables (the cables are described in Chapter 5, "Cables and Connectors"):
 - 8-Port Direct Modem Attach Cable
 - Portmaster 8-Port Cable
 - Selectable Cable
 - Selectable X.21 Cable
 - Selectable V.35 Cable
 - 6-Port X.21/RS-232 Cable
 - 6-Port V.35 Cable

Hardware Tools

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

Handling Static-Sensitive Devices

Components for your IBM ARTIC186 Model II ISA/PCI Adapter can be damaged by static discharges. To prevent this damage, your IBM ARTIC186 Model II ISA/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.

Switch and Jumper Locations

The following figure shows the location of the switches and the load-region jumpers.

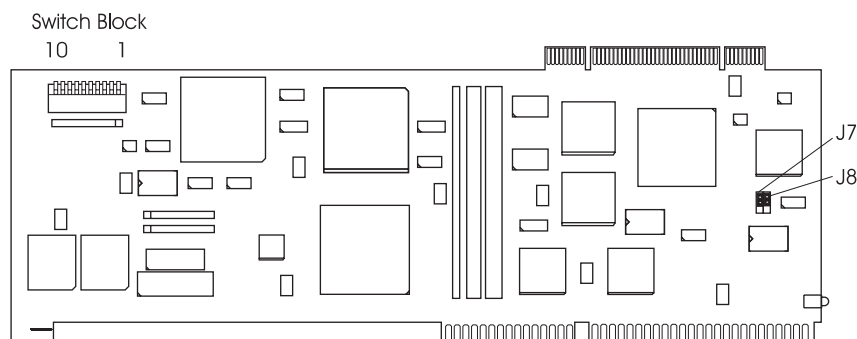


Figure 2-1. Location of Switches and Jumpers

Installation

The process of installing the IBM ARTIC186 Model II ISA/PCI Adapter consists of the following.

- Setting the jumper (page 2-3)
- Setting the switches—ISA only (page 2-4)
- Attaching the interface boards (page 2-7)
- Installing the assembled adapter in the system unit (page 2-8)
- Downloading the operating system support and diagnostic programs (page 2-9)
- Running diagnostics to verify installation (page 2-9)
- Connecting the optional cable (page 2-10)
- Setting up configuration files (page 2-10)

Before You Begin

Review the procedures for handling static-sensitive devices (page 2-2).

Setting the Load-Region Jumper

The IBM ARTIC186 Model II ISA/PCI Adapter can be configured to operate with a memory window 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 determines which window can be used. For example, the DOS operating system cannot directly access memory devices above 1 MB. Whereas, operating systems, such as Windows NT®, operate in the protected mode and can access memory devices above 1 MB.

The following shows the setting of the load-region jumpers (J7 and J8).



J7 J8

	<p>Window below 1 MB: The adapter requests memory resources below 1 MB. Use this setting if the computer is operating in a DOS environment. This is the factory setting.</p>
	<p>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).</p>

Setting the Option Switches

The IBM ARTIC186 Model II ISA/PCI Adapter has a 10-position option switch (see Figure 2-1 on page 2-2). The switches select configuration options when the adapter is installed in an ISA slot. The switches have no effect when the adapter is installed in a PCI slot.

The following are the default switch settings.

10 (BW)	9 (ED)	8 (C8)	7 (C4)	6 (C2)	5 (C1)	4	3 (L4)	2 (L2)	1 (L1)
On	On	On	On	On	On	--	Off	On	On

Switch Number	Factory Setting
10	8-bit data bus
9	Double-edge connector (16-bit ISA)
8+7+6+5	Base address: 02A0h
4	Not used
3+2+1	IRQ 10

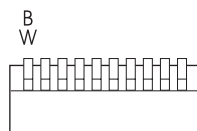
If your installation is using the preset values, proceed to “Attaching the Interface Board” on page 2-7. Otherwise, perform each of the following; then continue with “Attaching the Interface Board” on page 2-7.

- “Setting the Bus Width.”
- “Setting the ISA Connector Type” on page 2-5.
- “Setting the Base I/O Address” on page 2-5.
- “Setting the Interrupt Level” on page 2-6.

Setting the Bus Width: Switch 10 (BW) sets the width of the data bus. If the adapter is in an 8-bit ISA slot, the bus width must be 8 bit. If the adapter is in a 16-bit slot, the switch can be set to an 8-bit or 16-bit bus width, depending on your application.

Attention

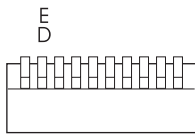
All IBM ARTIC adapters installed in ISA slots must be set to the same data bus width.



Switch 10 (BW)	Data Bus Width
On	8-bit Data
Off	16-bit Data

Figure 2-2. Bus-Width Switch

Setting the ISA Connector Type: Switch 9 (ED) specifies the system ISA connector used with the adapter. The 8-bit ISA connector uses a single-edge connector; the 16-bit ISA connector uses a double-edge connector.



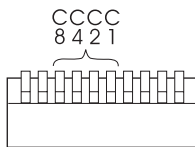
Switch 9 (ED)	Edge-Connector
On	Double-edge connector
Off	Single-edge connector

Figure 2-3. ISA Connector Type Switch

Setting the Base I/O Address: Switches 5 through 8 (C1, C2, C4, and C8) select the base I/O address. Each ISA adapter must have a unique I/O address to prevent resource conflicts.

Note: Adapters installed in PCI slots are configured automatically and do not affect the settings for adapters installed in ISA slots.

Record the instance number of the adapter (the first adapter is instance 0) and the base address with the configuration information for your system. Use the lowest base address first.

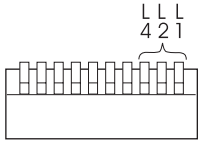


Switches				Base Address	Physical Card Designation
8 (C8)	7 (C4)	6 (C2)	5 (C1)		
On	On	On	On	02A0	0
On	On	On	Off	06A0	1
On	On	Off	On	0AA0	2
On	On	Off	Off	0EA0	3
On	Off	On	On	12A0	4
On	Off	On	Off	16A0	5
On	Off	Off	On	1AA0	6
On	Off	Off	Off	1EA0	7
Off	On	On	On	22A0	8
Off	On	On	Off	26A0	9
Off	On	Off	On	2AA0	10
Off	On	Off	Off	2EA0	11
Off	Off	On	On	32A0	12
Off	Off	On	Off	36A0	13
Off	Off	Off	On	3AA0	14
Off	Off	Off	Off	3EA0	15

Figure 2-4. Base I/O Address Switches

Setting the Interrupt Level: Switches 1 through 3 (L1, L2, and L4) select the interrupt level used by the adapter when it is installed in an ISA expansion slot.

If you install more than one IBM ARTIC adapter in ISA slots, set them to the same interrupt level (the IBM ARTIC adapters are designed to share the interrupt level with other IBM ARTIC adapters).



Switches			Interrupt Level
3 (L4)	2 (L2)	1 (L1)	
On	On	On	3
On	On	Off	4
On	Off	On	7
On	Off	Off	9 (or 2)
Off	On	On	10 (default)
Off	On	Off	11
Off	Off	On	12
Off	Off	Off	15

Figure 2-5. Interrupt Level Switches

Attaching the Interface Board

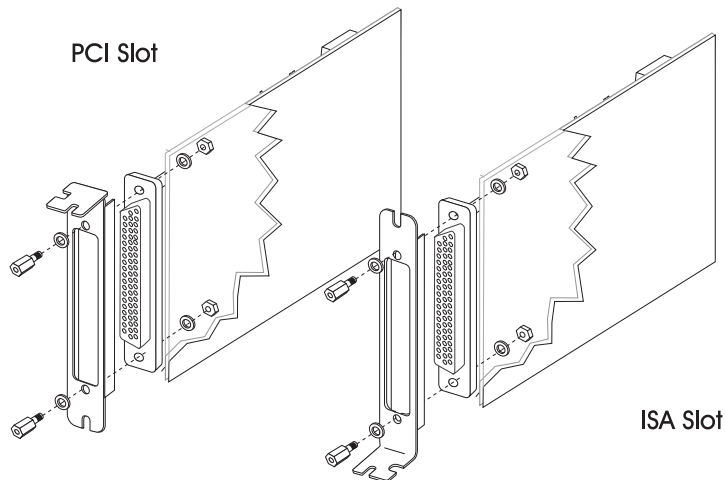
The following instructions assume that you have the base adapter out of the system unit and are ready to attach the interface boards.

1. Place the base adapter on a clean, static-free surface with the component side up.
2. Hold the interface boards (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 interface boards, and the system unit at the same ground potential, preventing an accidental static discharge.

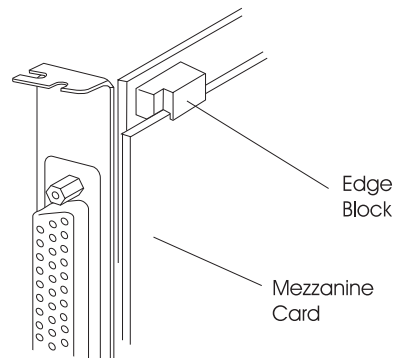
CAUTION:

Use care when handling the interface boards. The pins on the card are exposed and very sharp.

3. Remove the interface boards from the anti-static bag, holding the circuit board by the edges only. Do not touch the component pins, solder joints, or connector contacts.
4. When attaching the adapter bracket to the interface boards, the orientation of the bracket depends on whether the adapter is being installed in an ISA slot or a PCI slot, as shown.



5. Align the edge of the interface boards with the edge block on the base adapter, as shown. (The edge block is near the ISA connectors on the adapter.)



6. The pins on the interface boards are easily damaged and must be aligned precisely with the connector on the base adapter before the two cards are pressed together. Make sure the base adapter and the interface boards board are aligned before pressing them into place.

Position the interface boards over the base adapter with the component side of the interface boards and the base adapter facing each other.

7. Align the connectors on the interface boards with the connectors on the base adapter; then press them together.
8. Turn the assembled pair over so that the base adapter is on top, and install the two mounting screws.
9. Insert the assembled adapter into the anti-static bag until you are ready to install the adapter in the computer.

Installing the IBM ARTIC186 Model II ISA/PCI Adapter

Use the following steps as general information for installing your IBM ARTIC186 Model II ISA/PCI Adapter. For specific adapter installation instructions, consult the operating manual or the installation and setup manual for your specific personal computer system.

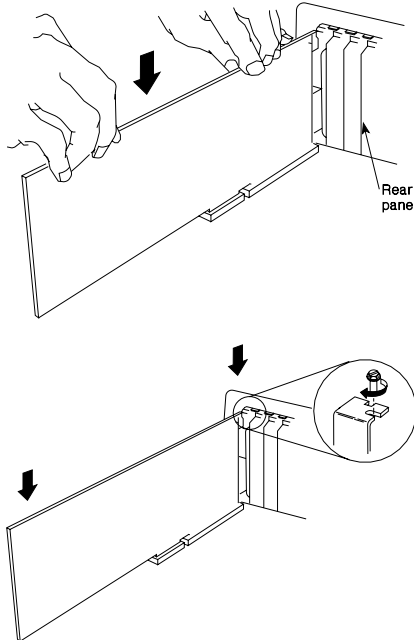
1. Turn off the computer and all attached devices.
2. Disconnect the power cords from the wall outlets.
3. Remove the cable-retaining brackets from the system unit and display.
4. Disconnect all cables from the rear of the system unit.
5. Use a flat-blade screwdriver or 1/4-inch nutdriver to remove the 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.

Attention

If you are installing the IBM ARTIC186 Model II ISA/PCI Adapter in a PCI slot and the operating system is DOS or OS/2, make sure the slot is on the primary bus (PCI bus 0). For Windows NT, the IBM ARTIC186 Model II ISA/PCI Adapter can be installed in any available PCI slot.

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 IBM ARTIC186 Model II ISA/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 to install, do so now. Refer to the documentation provided with your computer system if more information is required.
15. Reinstall the system unit cover.
16. Reconnect all cables previously removed from the system unit.
17. Reconnect all power cords into electrical outlets.

Downloading the Diagnostics and Operating-System Support 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**

Running Diagnostics to Verify Installation

Before continuing with "Connecting the Cable" on page 2-10, refer to the readme file on the Web to test the IBM ARTIC186 Model II ISA/PCI Adapter.

Connecting the Cable

Use the following steps to connect your optional cable. Refer to Chapter 5, "Cables and Connectors" for a listing of IBM cable options and a description of cabling requirements.

DANGER

Lightning protection. Do not connect or handle the cables 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 IBM ARTIC186 Model II ISA/PCI Adapter hardware; continue with "Setting Up Files."

Setting Up Files

See Appendix A, "DOS and OS/2 Configuration Information" 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 IBM ARTIC186 Model II ISA/PCI Adapter.

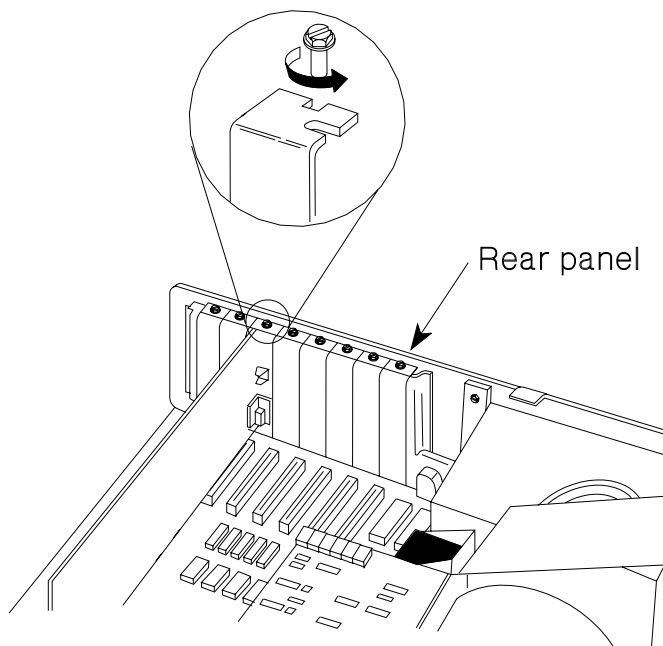
Chapter 3. Replacing the IBM ARTIC186 Model II ISA/PCI Adapter

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

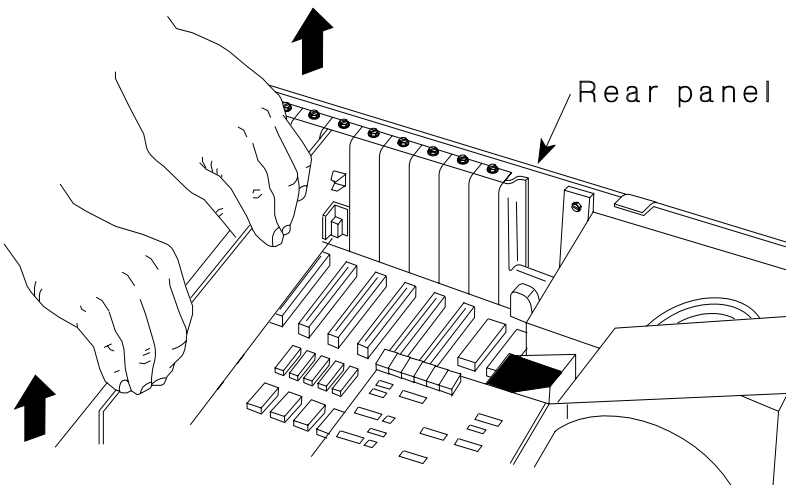
Removing the Adapter

Note: For instructions specific to your computer, refer to the hardware and service information that came with your computer.

1. Turn off the computer.
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.

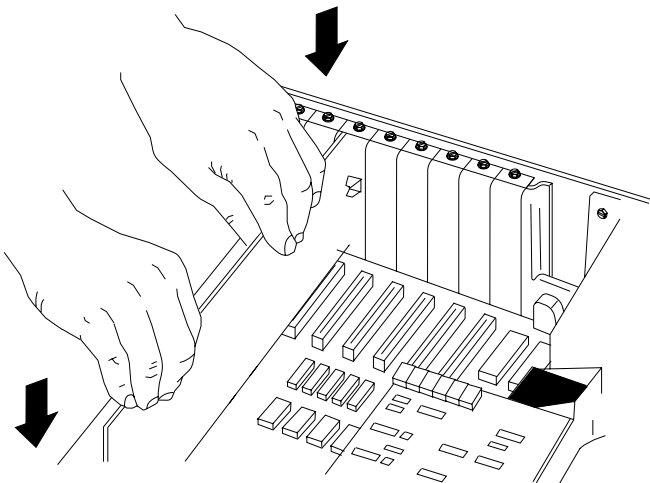


8. Remove the interface boards and the adapter bracket from the base adapter and set them aside.

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. Set the jumpers and switches on the new adapter to match the adapter you are replacing.
2. Install the interface boards on the new adapter.
3. Insert the adapter in the same expansion slot.
4. Press down firmly on the adapter to seat the connector.



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

Chapter 4. Troubleshooting

This chapter contains step-by-step instructions that can help you determine if your IBM ARTIC186 Model II ISA/PCI Adapter is operating properly.

- To test the IBM ARTIC186 Model II ISA/PCI Adapter after completing the initial installation, refer to diagnostic information on the Web.
- For part numbers associated with the IBM ARTIC186 Model II ISA/PCI Adapter, see “Part Numbers” on page 1-1. For part numbers of options used with the IBM ARTIC186 Model II ISA/PCI Adapter, see “IBM Options and Part Numbers” on page 5-1.

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 the diagnostic tests.

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 IBM ARTIC186 Model II ISA/PCI Adapter diagnostics.

Diagnostic Wrap Plugs

Diagnostic wrap tests are performed at the connector on the adapter and at a specific port connector on the cable. The diagnostic program prompts you when to install the wrap plug.

The wrap plug needed depends on the interface boards used and configuration of the port. For wrap-plug part numbers, see “IBM Options and Part Numbers” on page 5-1.

Chapter 5. Cables and Connectors

This chapter contains cable and connector information.

Cable Information

The cable used depends on the interface boards attached to the IBM ARTIC186 Model II ISA/PCI Adapter. The following cables are available as options from your IBM representative.

- 8-Port Direct Modem Attach Cable

The cable is 1.8 meters (6 feet) long. It has a 100-pin connector that splits into eight individual cables with 25-pin connectors.

- Portmaster 8-Port Cable

The cable is 1.8 meters (6 feet) long. It has a 100-pin connector and a breakout box with eight 25-pin male connectors for attaching cables.

- Selectable Cable

The cable is 3.0 meters (9.8 feet) long. It has a 78-pin connector and a breakout box with nine male connectors for attaching cables.

- Selectable X.21 Cable

The cable is 1.8 meters (6 feet) long. It has a 78-pin connector at the adapter with a single 15-pin connector at the device end.

- Selectable V.35 Cable

The cable is 1.8 meters (6 feet) long. It has a 78-pin connector at the adapter with a single 34-pin connector at the device end.

- 6-Port X.21/RS-232 Cable

The cable is 1.8 meters (6 feet) long. It has a 78-pin connector and a breakout box with six 25-pin male connectors for attaching cables.

- 6-Port V.35 Cable

The cable is 1.8 meters (6 feet) long. It has a 100-pin connector and a breakout box with six 25-pin male connectors for attaching cables.

IBM Options and Part Numbers

Table 5-1 on page 5-2 shows the interface boards used with the IBM ARTIC186 Model II ISA/PCI Adapter and the cable options associated with each interface boards. The table also lists the wrap plugs for each option.

The interface boards and cables have two part numbers: a feature part number and a field-replaceable unit (FRU) part number. Use the feature part number when first ordering the option; use the FRU part number when ordering the part as a service replacement.

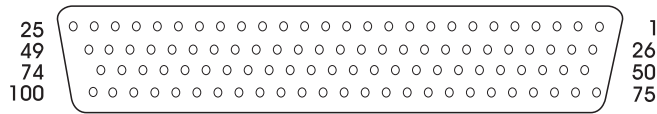
Note: Cable options (feature part number) usually include the cable-end wrap plug. However, the wrap plug for the connector on the interface boards must be ordered separately.

Table 5-1. IBM ARTIC186 Model II ISA/PCI Adapter Option Part Numbers

Interface Board Option				Cable Option			
Interface Board	Part Numbers			Cable	Part Numbers		
	Feature	FRU	Wrap Plug		Feature	FRU	Wrap Plug
8-Port RS-232	53F2610	53F2612	15F8848	IBM ARTIC 8-Port Direct Modem Attach Cable	71G3497	71G5053	33F8985
				IBM ARTIC Portmaster 8-Port Cable	53F2619	53F2621	33F8985
8-Port RS-422	53F2613	53F2615	57F0678	IBM ARTIC 8-Port Direct Modem Attach Cable	71G3497	71G5053	33F8964
				IBM ARTIC Portmaster 8-Port Cable	53F2619	53F2621	33F8964
Selectable Interface	53F2616	84F7540	40F9902	IBM ARTIC Selectable Cable	53F2622	53F2624	40F9903 (232/422) 40F9904 (X.21) 40F9900 (V.35)
				IBM ARTIC Selectable X.21 Cable	57F2746	57F2751	40F9904
				IBM ARTIC Selectable V.35 Cable	57F2748	57F2752	71F0163
6-Port X.21	72F0176	04G5500	85F0205	IBM ARTIC 6-Port X.21/RS-232 Cable	05F2028	15F8868	85F0206
6-Port V.35	72F0163	72F0164	72F0168	IBM ARTIC 6-Port V.35 Cable	72F0165	72F1966	72F0167
ARTIC186 Model II 232/422 Interface Board	00N8111	00N8113	57F0678	IBM ARTIC 8-Port Direct Modem Attach Cable	71G3497	71G5053	33F8985
				IBM ARTIC Portmaster 8-Port Cable	53F2619	53F2621	33F8985

8-Port RS-232 Interface Board/A

The following shows the 100-pin, female D-shell connector on the 8-Port RS-232 Interface Board/A.



The following shows a typical 25-pin, male D-shell connector.

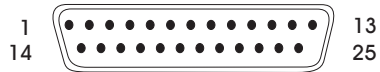


Table 5-2 shows the pin assignments for the 100-pin connector on the 8-Port RS-232 Interface Board/A and the corresponding port and pin assignments on the 8-port Direct Modem Attach Cable and the Portmaster 8-Port Cable.

Signal Name	I/O	100-Pin Connector								25-Pin Connector
		0	1	2	3	4	5	6	7	
TxD	O	51	54	07	10	13	16	94	48	02/BA
RxD	I	02	05	83	86	89	92	46	74	03/BB
RTS	O	01	04	82	85	88	91	45	73	04/CA
CTS	I	77	80	34	37	40	43	71	24	05/CB
DCD	I	28	31	59	62	65	68	21	99	08/CF
DTR	O	76	79	33	36	39	42	70	23	20/CD
DSR	I	53	56	09	12	15	18	96	50	06/CC
HRS	I	27	30	58	61	64	67	20	98	23/CI
RI	I	03	06	84	87	90	93	47	75	22/CE
TCLKIN	I	29	32	60	63	66	69	22	100	15/DB
TCLK	O	52	55	08	11	14	17	95	49	24/DA
RCLK	I	78	81	35	38	41	44	72	25	17/DD
SGND	---	19	19	26	26	57	57	97	97	07/AB
FGND	---	Cable Shield								01/AA

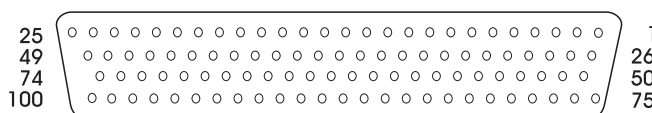
Electrical Power

The following shows the power used by the 8-Port RS-232 Interface Board/A.

Optimum Voltages:	Maximum Current:
+4.8 V dc to +5.25 V dc	0.6 A
+11.3 V dc to +12.7 V dc	0.095 A
-10.8 V dc to -13.2 V dc	0.16 A

8-Port RS-422 Interface Board/A

The following shows the 100-pin, female D-shell connector on the 8-Port RS-422 Interface Board/A.



The following shows a typical 25-pin, male D-shell connector.

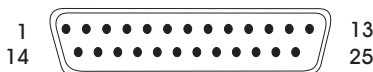


Table 5-3 shows the pin assignments for the 100-pin connector on the 8-Port RS-422 Board/A and the corresponding port and pin assignments on the 8-Port Direct Modem Attach Cable and Portmaster 8-Port Cable.

Attention

All electronic equipment is susceptible to transient voltages and surge currents. Every time a load is switched on or off, electrical noise and voltage fluctuations occur causing the transients and surges to be carried to all other loads in the vicinity. As these transients and surges increase in level, sensitive electronic equipment can be damaged. To provide protection for electronic devices on ARTIC adapters, a Surge Protector Adapter (IBM P/N 53F2625) is available. (See "Surge Protector Adapter" on page 5-13 for more information.)

Signal Name	I/O	100-Pin Connector								25-Pin Connector
		0	1	2	3	4	5	6	7	
TxD	O	51	54	07	10	13	16	94	48	02/SDA
	O	52	55	08	11	14	17	95	49	24/SDB
RxD	I	02	05	83	86	89	92	46	74	03/RDA
	I	78	81	35	38	41	44	72	25	17/RDB
-RTS	O	01	04	82	85	88	91	45	73	04/RSA
	O	76	79	33	36	39	42	70	23	20/RSB
-CTS	I	77	80	34	37	40	43	71	24	05/CSA
	I	53	56	09	12	15	18	96	50	06/CSB
TCLK	I	28	31	59	62	65	68	21	99	08/STA
	I	03	06	84	87	90	93	47	75	22/STB
RCLK	I	29	32	60	63	66	69	22	100	15/RTA
	I	27	30	58	61	64	67	20	98	23/RTB
SGND	---	19	19	26	26	57	57	97	97	07/GND
FGND	---	Cable Shield								01/FGND

Electrical Power

The following shows the power used by the 8-Port RS-422 Interface Board/A.

Optimum Voltages: Maximum Current:

+5 V dc 1.1 A

+12 V dc 0 A

-12 V dc 0 A

Selectable Interface Board/A

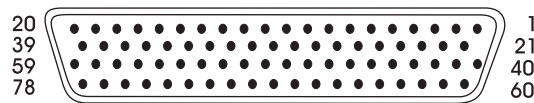
Three cable options can be used with this interface boards: the Selectable Cable, Selectable X.21 Cable, and Selectable V.35 Cable.

Selectable Cable

Certain cable connectors are too wide to attach to the Selectable Cable. Make sure that the connectors you select fit within the side rails of the Selectable Cable.

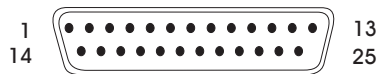
The nine connectors on the breakout box are numbered 0 through 8.

The following shows the 78-pin female D-shell connector on the Selectable Interface Board/A.



RS-232 Interface: Table 5-4 shows the pin assignments for the 78-pin connector on the Selectable Interface Board/A and the corresponding connector pins on the Selectable Cable.

Ports 0 through 3 are routed through connectors 1, 4, 6, and 7, respectively.



Signal Name	I/O	78-Pin Connector				25-Pin Connector (1, 4, 6, 7)
		0	1	2	3	
TxD	O	40	04	66	69	02
RxD	I	02	64	28	31	03
RTS	O	01	63	27	30	04
CTS	I	61	25	48	51	05
DCD	I	22	45	09	12	08
DTR	O	60	24	47	50	20
DSR	I	42	06	68	71	06
HRS	O	21	44	11		23 (1, 4, 7)
RI	I	03	65	29	32	22
DTECLK	O	15	34	54	73	24
TCLKIN	I	23	56	70	75	15
RCLKIN	I	62	26	10	17	17
SG	---	43	07	08	67	07

Electrical Power

The following shows the power used by the Selectable Interface Board/A.

Optimum Voltages:	Maximum Current:
+5 V dc	0.82 A
+12 V dc	0.038 A
-12 V dc	0.072 A

RS-422 Interface: Table 5-5 shows the pin assignments for the 78-pin connector on the Selectable Interface Board/A and the corresponding connector pins on the Selectable Cable.

Ports 0 and 2 are routed through connectors 3 and 8, respectively.

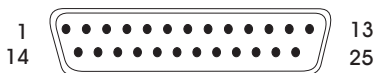


Table 5-5. RS-422 Connector Pin Assignments

Signal Name	I/O	78-Pin Connector		25-Pin Connectors
		0	2	3, 8
TxD	O	37	13	02 02 SDA
	O	76	52	04 04 SDB
RxD	I	19	33	03 03 RDA
	I	58	72	05 05 RDB
TCLK	I	18	--	23 -- STA
	I	57	--	24 -- STB
RCLK	I	38	--	22 -- RTA
	I	77	--	17 -- RTB
SGND	---	43	08	07 07 GND

X.21 Interface: Table 5-6 shows the pin assignments for the 78-pin connector on the Selectable Interface Board/A and the corresponding connector pins on the Selectable Cable.

Port 0 is routed through connector 9.

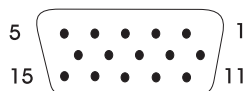


Table 5-6. X.21 Connector Pin Assignments

Signal Name	I/O	78-Pin Connector		15-Pin Connector
		Port 0	Port 0	2
T(A)	O	37		02
T(B)	O	76		09
R(A)	I	19		04
R(B)	I	58		11
C(A)	O	20		03
C(B)	O	59		10
I(A)	I	18		05
I(B)	I	57		12
S(A)	I	38		06
S(B)	I	77		13
SG	---	43		08

V.35 Interface: Table 5-7 shows the pin assignments for the 78-pin connector on the Selectable Interface Board/A and the corresponding connector pins on the Selectable Cable.

Ports 0 and 1 are routed through connectors 0 and 5, respectively.

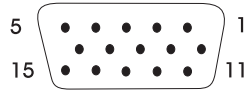


Table 5-7. V.35 Connector Pin Assignments

Signal Name	I/O	78-Pin Connector		15-Pin Connectors
		0	1	0, 5
TXDA	O	36	49	09
TXDB	O	53	14	02
RXDA	I	19	78	11
RXDB	I	58	35	04
TXCA	I	18	39	10
TXCB	I	57	16	12
RXCA	I	38	74	14
RXCB	I	77	55	13
RTS	O	01	63	03
CTS	I	61	25	05
DCD	I	22	45	07
DSR	I	42	06	06
DTR	O	60	24	15
SGND	---	43	07	08

Selectable X.21 Cable

The following shows the pin number and signal assignment for this connector and the Selectable X.21 Cable.

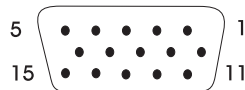


Table 5-8. X.21 Connector Pin Assignments

Signal Name	I/O	78-Pin Connector	15-Pin Connector
		Port 0	Connector
T(A)	O	37	02
T(B)	O	76	09
R(A)	I	19	04
R(B)	I	58	11
C(A)	O	20	03
C(B)	O	59	10
I(A)	I	18	05
I(B)	I	57	12
S(A)	I	38	06
S(B)	I	77	13
SGND	---	43	08
FGND	---	Cable shield	01

Selectable V.35 Cable

The following shows the pin number and signal assignment for this connector and the Selectable V.35 Cable.

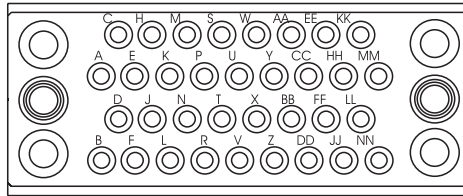


Table 5-9. V.35 Connector Pin Assignments

Signal Name	I/O	78-Pin Connector Port 0	34-Pin Connector
TXDA	O	36	P
TXDB	O	53	S
RXDA	I	19	R
RXDB	I	58	T
TXCA *	I	57	Y
TXCB *	I	18	AA
RXCA	I	38	V
RXCB	I	77	X
RTS	O	01	C
CTS	I	61	D
DCD	I	22	F
DSR	I	42	E
DTR	O	60	H
SGND	---	43	B
FGND	---	Cable ground	A

Note: * To support data rates above 1 000 000 bps, the polarity of the transmit clock signal are reversed (the TXCA and TXCB lines are interchanged).

6-Port X.21 Interface Board/A

The 6-Port X.21 Interface Board/A has a 78-pin, female D-shell connector. The 6-Port X.21/RS-232 Cable is used with this interface boards.

The following shows the pin number and signal assignment for this connector and the 6-Port X.21/RS-232 Cable.

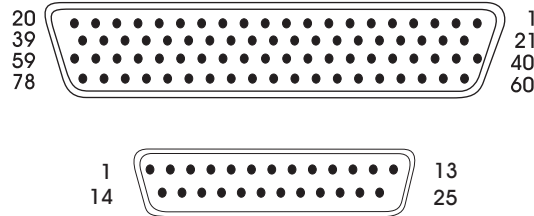


Table 5-10. X.21 Connector Pin Assignments

Signal Name	I/O	78-Pin Connector						25-Pin Connectors
		0	1	2	3	4	5	
T(A)	O	40	04	66	69	73	55	02
T(B)	O	41	05	19	20	10	13	24
R(A)	I	02	64	28	31	54	75	03
R(B)	I	62	26	57	77	18	53	17
C(A)	O	01	63	27	30	34	16	04
C(B)	O	60	24	47	50	35	17	20
I(A)	I	61	25	48	51	15	36	05
I(B)	I	42	06	68	71	72	33	06
X(A)	O	22	45	09	12	74	56	08
X(B)	O	03	65	29	32	49	52	22
S(A)	I	23	46	78	59	39	14	15
S(B)	I	21	44	76	37	38	58	23
SG	---	43	07	08	67	11	70	07

Electrical Power

The following shows the power used by the 6-Port X.21 Interface Board/A.

Optimum Voltages:	Maximum Current:
+5 V dc	0.85 A
+12 V dc	0 A
-12 V dc	0 A

6-Port V.35 Interface Board/A

The 6-Port V.35 Interface Board/A has a 100-pin, female D-shell connector. The 6-Port V.35 Cable is used with this interface boards.

The following shows the pin number and signal assignment for this connector and the 6-Port V.35 Cable.

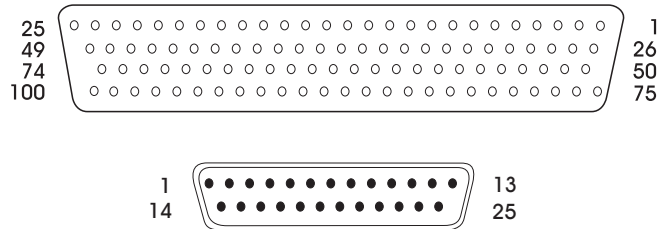


Table 5-11. 6-Port V.35 Connector Pin Assignments

Signal Name	I/O	100-Pin Connector						25-Pin Connector
		0	1	2	3	4	5	
TXDA	O	94	21	47	71	72	23	02
TXDB	O	70	46	22	95	96	48	14
RXDA	I	08	54	58	29	28	57	03
RXDB	I	33	78	82	04	03	81	16
TXCA IN	I	76	06	77	56	27	55	15
TXCB IN	I	52	31	53	80	02	79	12
RXCA	I	20	41	38	19	32	30	17
RXCB	I	45	16	13	44	07	05	09
TXCA OUT	O	24	73	98	25	99	26	24
TXCB OUT	O	49	97	74	50	75	51	11
RTS	O	42	43	92	93	37	39	04
CTS	I	15	65	86	87	59	09	05
DCD	I	89	40	62	61	35	84	08
DTR	O	18	91	69	68	14	12	20
DSR	I	66	90	88	64	60	85	06
SGND	---	34	17	63	67	01	83	07
FGND	---	100 (Cable Shield)						01

Electrical Power

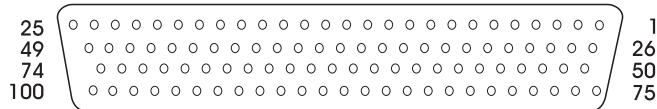
The following shows the power used by the 6-Port V.35 Interface Board/A.

Optimum Voltages:	Maximum Current:
+5 V dc	0.74 A
+12 V dc	0.06 A
-12 V dc	0.06 A

ARTIC186 Model II 232/422 Interface Board

Two cable options can be used with this interface board: the 8-Port Direct Modem Attach Cable and the IBM ARTIC Portmaster 8-Port Cable.

The following shows the 100-pin, female D-shell connector on the ARTIC186 Model II 232/422 Interface Board.



The following shows a typical 25-pin, male D-shell connector.

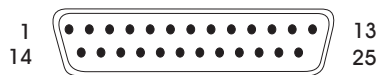


Table 5-12 shows the pin assignments for the 100-pin connector on the ARTIC186 Model II 232/422 Interface Board and the corresponding port and pin assignments for the EIA-232 interface on ports 0–3.

Attention

All electronic equipment is susceptible to transient voltages and surge currents. Every time a load is switched on or off, electrical noise and voltage fluctuations occur causing the transients and surges to be carried to all other loads in the vicinity. As these transients and surges increase in level, sensitive electronic equipment can be damaged. To provide protection for electronic devices on ARTIC adapters, a Surge Protector Adapter (IBM P/N 53F2625) is available. (See “Surge Protector Adapter” on page 5-13 for more information.)

Signal Name	I/O	100-Pin Connector								25-Pin Connector
		0	1	2	3	4	5	6	7	
TxD	O	51	54	07	10	--	--	--	--	02/BA
RxD	I	02	05	83	86	--	--	--	--	03/BB
RTS	O	01	04	82	85	--	--	--	--	04/CA
CTS	I	77	80	34	37	--	--	--	--	05/CB
DCD	I	28	31	59	62	--	--	--	--	08/CF
DTR	O	76	79	33	36	--	--	--	--	20/CD
DSR	I	53	56	09	12	--	--	--	--	06/CC
HRS	I	27	30	58	61	--	--	--	--	23/CI
RI	I	03	06	84	87	--	--	--	--	22/CE
TCLKIN	I	29	32	60	63	--	--	--	--	15/DB
TCLK	O	52	55	08	11	--	--	--	--	24/DA
RCLK	I	78	81	35	38	--	--	--	--	17/DD
SGND	---	19	19	26	26	--	--	--	--	07/AB
FGND	---	Cable Shield								01/AA

Table 5-13 shows the pin assignments for the 100-pin connector on the ARTIC186 Model II 232/422 Interface Board and the corresponding port and pin assignments for the RS-422/485 interface on ports 4–7.

<i>Table 5-13. RS-422/485 Cable Pin Assignments</i>										
Signal Name	I/O	100-Pin Connector								25-Pin Connector
		0	1	2	3	4	5	6	7	
TxD	O	--	--	--	--	13	16	94	48	02/SDA
	O	--	--	--	--	14	17	95	49	24/SDB
RxD	I	--	--	--	--	89	92	46	74	03/RDA
	I	--	--	--	--	41	44	72	25	17/RDB
-RTS	O	--	--	--	--	88	91	45	73	04/RSA
	O	--	--	--	--	39	42	70	23	20/RSB
-CTS	I	--	--	--	--	40	43	71	24	05/CSA
	I	--	--	--	--	15	18	96	50	06/CSB
TCLK	I	--	--	--	--	65	68	21	99	08/STA
	I	--	--	--	--	90	93	47	75	22/STB
RCLK	I	--	--	--	--	66	69	22	100	15/RTA
	I	--	--	--	--	64	67	20	98	23/RTB
SGND	---	--	--	--	--	57	57	97	97	07/GND
FGND	---	Cable Shield								01/FGND

Electrical Power

The following shows the power used by the ARTIC186 Model II 232/422 Interface Board.

Optimum Voltages:	Maximum Current:
+5 V dc	0.192 A
+12 V dc	0.000785 A
-12 V dc	0.000493 A

Surge Protector Adapter

The input connector to the surge protector is a 25-pin, female D-shell connector; the output connector is a male connector. The following shows the pin numbering for the 25-pin, male D-shell connector.

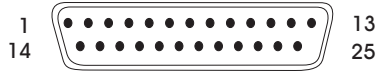


Table 5-14 shows the RS-422 pin assignments for the Surge Protector Adapter.

<i>Table 5-14. Surge Protector Adapter Pin Assignments</i>		
Signal Name	I/O	25-Pin Connector
TxD	O	02/SDA
	O	24/SDB
RxD	I	03/RDA
	I	17/RDB
SGND	---	07/GND
FGND	---	01/FGND
Note: Not all other pins are connected.		

Cabling Recommendations

The following cabling recommendations apply to any cables being made for use with any of the interface boards used with the IBM ARTIC186 Model II ISA/PCI Adapter. Correct operation of any interface depends on several factors that should be taken when making the cable.

- Unshielded twisted-pair wire might be adequate for some low-noise installations; however, shielded twisted-pair wire is recommended for most installations.
- In areas of high electrical noise, shielded twisted-pair cable should be used to increase noise immunity. Shielded twisted-pair cable also helps eliminate interference from the base adapter.
- The shield should be connected to the metal housing on the D-shell connectors to provide a low-impedance path to ground for noise.
- RS-422/485 can support up to 10 devices per non-terminated line.
- The maximum cable lengths supported for the various communications protocols are:

Protocol	Length (meters)	Length (feet)
RS-232	15.2	50
V.35	15.2	50
RS-422/485	122	400
X.21	122	400

Physical Characteristics

Typical physical characteristics for cables are listed below. Consult cable manufacturer catalogs for more information.

- 24 AWG, copper conductor, twisted-pair telephone cable, approximately 120-ohms impedance
- DC resistance (single conductor) is 23.7 ohms/1000 meters
- Shunt capacitance is 16 pF/foot.

Appendix A. DOS and OS/2 Configuration Information

Note:

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

Be sure you are installing the IBM ARTIC186 Model II ISA/PCI Adapter in a PCI slot that is on the primary bus (PCI bus 0).

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 adapter.

Note: This file is the same one used by the Realtime Interface Co-Processor Multiport and Multiport, Model 2 adapters.

ICAPARM.PRM is a small file that can be created with an ASCII 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 adapter is 02A0h, the values 0000 through 00FFh are used to identify PCI adapters. The lowest byte is divided into two 4-bit fields. The upper four bits define which PCI adapter (0 is for ARTIC PCI); the lower four 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 of an ISA adapter can be changed by changing the position of its entry in the ICAPARM.PRM file in relationship to the other ISA adapters (ISA adapters must have a logical number greater than any PCI adapter). See "Example 2: Multiple IBM ARTIC Adapters" on page A-3.

Example 1: One IBM ARTIC Adapter

The following example shows an ICAPARM.PRM file that can be used if you have only one IBM ARTIC adapter installed in your computer.

```
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 IBM ARTIC adapters. (See Field 4). |
| 4 | Shared Memory Address, Page Value. Range 60–6Fh for all IBM ARTIC adapters. Used with Meg Value (Field 3) to define the window, in shared memory, 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 | The system address used 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 IBM ARTIC Adapters

The sequence of entries in the ICAPARM.PRM file determines the logical card numbering of the adapters (the first parameter line is for logical card 0).

The logical card numbering for PCI adapters must match the physical card numbering. The logical card numbering for ISA adapters can be changed, but the entries for all PCI adapters must appear in the list before any entries for ISA adapters.

The following example shows an ICAPARM.PRM file for two ISA and two PCI adapters in an ISA/PCI system. (For an explanation of the fields, see the field descriptions under "Example 1: One IBM ARTIC Adapter" on page A-2.)

Field Number	1	2	3	4	5	6	7	8	9	10	11
#	0000	00	00	10	10	50	32	0F	E010	;	
#	0001	00	00	10	10	50	32	0F	E010	;	
#	06A0	00	6F	20	20	20	20	0C	E010	;	
#	02A0	00	6E	10	10	50	32	0C	E010	\$	

In this example, the two PCI adapters (physical card 0000 and 0001) are assigned to logical card 0 and 1, respectively. The ISA adapter at address 06A0 is assigned to logical card 2, and the ISA adapter at address 02A0 is assigned to logical card 3.

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 IBM ARTIC186 Model II ISA/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 reset the card:

```
#02A0 00 61 10 10 10 70 00 0000;
```

Selecting an Interrupt Level

When installed in an ISA slot, the IBM ARTIC186 Model II ISA/PCI Adapter can be configured to operate on several hardware interrupt levels.

- For optimal performance, each IBM ARTIC adapter installed in an ISA slot should have its own unique interrupt level.
- The next best configuration is to place these adapters on a single interrupt level.
- If neither of the preceding configurations is available, choose an interrupt level that can be shared with a non-ARTIC adapter.

Appendix B. Notices

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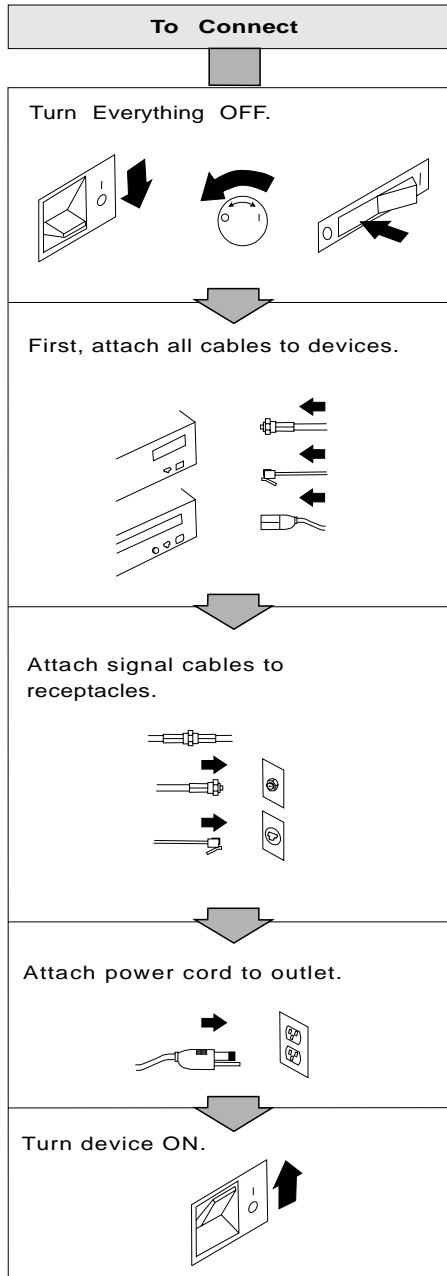
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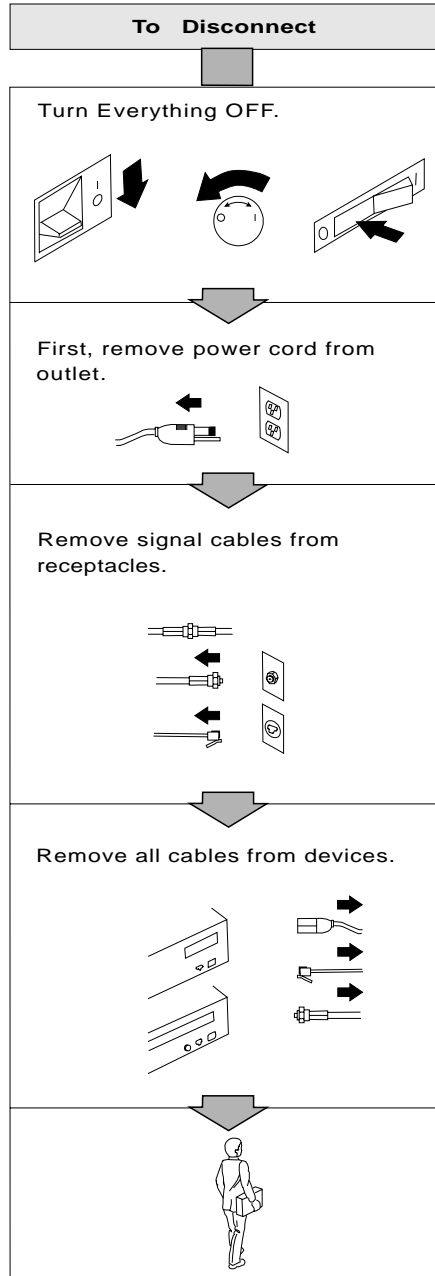
Safety Information



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.



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



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 Maßnahmen 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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