

IDEA

The intelligence to communicate better.

IDEAcomm® 5251/Plus

Hardware Guide

IDEAcomm® 5251/Plus
IBM Midrange
Communications
for the IBM PC and PS/2

Hardware Guide

IDEA

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To obtain Limited Warranty coverage, you must complete and return the enclosed Warranty Card.

Information on warranty service is in the appendix on Customer Support at the end of this manual.

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Customer Survey Form



Product: IDEAcomm
5251/Plus Hardware Guide
Rev. 12

1. Were there any errors in the manual? If yes, list page numbers and kind of error:

2. Was information:
easy to understand _____
difficult _____
List information that was hard to find:

3. Was information:
complete _____
incomplete _____

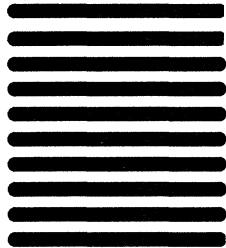
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- 8. Please use the rest of this page for additional comments.

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Notice



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Service

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Section I:

Introduction



The IDEComm 5251 card, when combined with the appropriate emulation software, provides local twinax communications for an IBM PC or PS/2 to the IBM midrange system. The Adapter Handler software, which is shipped with the card, provides connection with IBM's PC Support on the AS/400.

For other emulation functions, this card is used with the IDEComm 5251/Plus software, which has its own manual.

Handling the IDEA Card

During unpacking and installation, please be careful with the IDEComm card. Keep all food and beverages away from the card. Do not bend or drop the card.

Serial Number and Version Number

Please turn your IDEComm card to the component side. The serial number is on a sticker on the card. (It is also on the box.) Record this number NOW on both your warranty card and on the following line in this manual.

Serial Number: _____

Date of Purchase: _____

Please write the version number of your software diskette here:

Version Number: _____

Inventory Checklist

The following is a list of the components you should have received:

- IDEAcomm 5251/Plus or 5251/Gold card, PC version or Micro Channel version
- Short twinaxial cable with 15 pin serial connector and T-connector
- Diskette(s), 3 1/2 inches and 5 1/4"

Caution

This diskette contains all the files needed for installing micro channel hardware with a 7 LU board (IDEAcomm 5251/Plus). If you have a 4 LU board, use the files in the subdirectory named 4LU. See Section III.

Do not run SETUP from the diskette unless you are using PC Support/400. See Section V.

- Hardware Guide (this book)
- Warranty card

What the User Must Supply

1. Medium size flat blade screwdriver for opening the PC
2. Pliers or a 1/4 inch socket wrench to remove the back cover of some models of the IBM PC
3. Small flat blade screwdriver for attaching the TWINAX cable connector
4. Twinaxial cable with connectors
5. Software (unless you are using the card only for AS/400 PC Support described in Section V).

Overview of the IDEAcmm 5251/Plus Card

The IDEAcmm card:

- works with IDEAcmm 5251/Plus (TWINAX), IDEAcmm 5251/Gateway Plus, and IDEAcmm 5251/OS software to link the IBM PC or PS/2 series to an IBM System 34/36/38 or AS/400 minicomputer, or to the IBM 5394 or IBM 5251 Model 12 remote controllers, via an IBM twinaxial cable.
- works with its own software driver, IDEAH.EXE, to provide access to PC Support on the AS/400.

Making the IDEA Card Operational (a Summary)

1. On the PC family and PS/2 Model 30, set the I/O address switches on the PC card.
2. Install the card in the PC or PS/2.

On the PS/2 Models 50 – 80, boot from the Reference Diskette and run the IBM automatic configuration program.

3. With IDEAcmm 5251/Plus, IDEAcmm 5251/Gateway Plus, or IDEAcmm 5251/OS, refer to the software manual for further steps.

For PC Support with the AS/400, run SETUP.

Organization and Scope of the Manuals

This manual is the basic reference for hardware installation and diagnostics for the IDEAcomm 5251/Plus communications package. It is the only reference for the AS/400 PC Support communications package.

Related Publications

The *IDEAcomm 5251/Plus Software Guide* is sold with the IDEAcomm 5251/Plus software packages. It includes how to configure and run emulation with DOS and how to use features such as the keyboard editor.

The *IDEAcomm 5251 Gateway/Plus Guide* is sold with the IDEAcomm 5251 Gateway/Plus software, which allows several PCs or PS/2s on a network compatible with NetBIOS to share one IDEAcomm 5251/Plus card.

The *IDEAcomm 5251/Plus Technical Reference Guide* is available free to customers who purchase an IDEAcomm 5251/Plus software package. It includes information on advanced topics, including the IDEA and IBM applications programming interfaces and IDEA support of IBM printer commands.

The *IDEAcomm 5251/OS Guide* is sold with the IDEAcomm 5251/OS software package. It includes how to configure and run emulation with OS/2.

IDEAcomm 5251/Plus: Manuel d'Installation includes the basics of hardware and software installation for users of the French emulation products. It is meant for use in conjunction with this manual and the *IDEAcomm 5251/Plus Software Guide*.

Notation Conventions

PC	Refers to an IBM PC, XT, AT, or PS/2 Model 30.
TWINAX	The name of the IDEAcmm 5251/Plus software program.
System 3X	The 3X stands for the IBM System/34, /36, and /38.
IBM midrange	The 3X and AS/400 mini-computers.
UPPERCASE	Information in upper case must be entered as shown. It can be entered in upper or lower case, but is displayed on the screen in upper case.
lowercase	Fields in lower case indicate variable information.
pathname	A field shown as pathname indicates a standard DOS file specification of the form: [drive:][directory\]filename[.ext].
<Enter>	Press the Enter key.
[]	Square brackets indicate optional fields. The square brackets should not be entered.

Documentation Updates

Enhancements or corrections to the documentation are in the READ.ME file on your diskette.

A list of the files included with each release is in the file VERSION.DOC.

Section II:

Installing the PC Card

Use this section if you have a PC series microcomputer or a PS/2 Model 30. For other models of the PS/2, see Section III.

Installation Overview

1. Open the IBM PC.
2. Check switches on the IDEAcmm card.
3. Insert the card in the PC.
4. Replace the IBM PC cover.
5. "Terminate" the card if it is the last device on the cable or run (Section IV).
6. Connect the TWINAX cable (Section IV and Appendix B).
7. Run **SETUP** from the accompanying diskette **only** if you will use PC/Support on the AS/400.

Please read through this entire section before beginning installation.

A Note on Memory Addresses

The memory address of the IDEA card is set automatically. Please note that some versions of Revisions 10 and 11 of the 5251/Gold PC card support memory addresses C000, D000, and E000. All other revisions of the 5251/Gold card support addresses C000, C800, D000, D800, E000, and E800.

Opening the IBM PC

Preliminary Steps

- Turn off the PC power switch.
- Turn off power to any peripheral devices (printer, monitor, hard disk, and so on.).
- If you have an AT, unlock it.
- Unplug the computer and all peripherals from the wall outlet.
- Carefully note where each cable is attached so that you can reattach them later. Disconnect all cables from the back of the PC.

IBM Cover Removal

- Move your keyboard and all peripheral equipment away from the work area.
- Position the PC or PS/2 to allow rear access.
- With an AT, you must remove the back panel first. Pull firmly to detach the plastic fasteners.
- The cover is attached by two or five screws. With a flat blade screwdriver, remove the cover mounting screws by turning the screwdriver counter-clockwise. Certain models may require the use of pliers or a 1/4 inch socket wrench.
- Carefully slide the cover away from the rear of the unit. When the cover will go no further, tilt it up and remove it from the base. The AT requires no tilting.

Checking Switches on the Card

Below is a diagram of the IDEAcomm 5251/Gold card Revision 10 and higher.

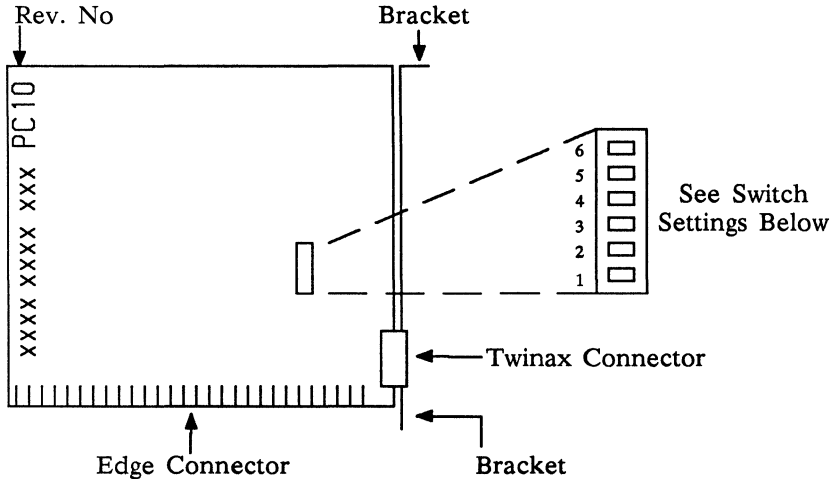
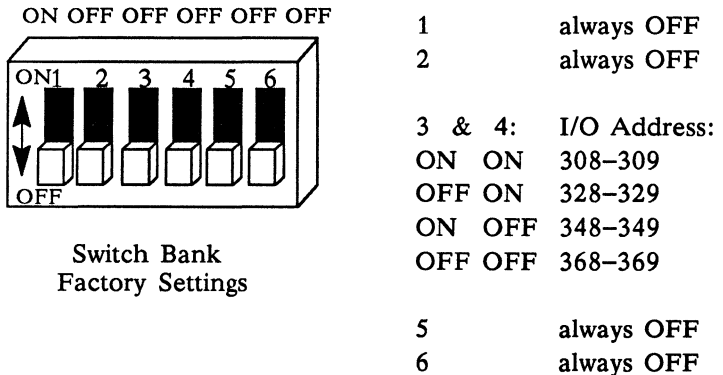


Figure 2-1: The IDEAcomm 5251/Gold Card Revision 10 and Higher

The switch positions are set at the factory for I/O address 368-369. Change the default setting if you have another card with the same I/O address.



Switch Bank
Factory Settings

Inserting the IDEComm Card

Once the switch settings are verified, you can insert the IDEComm card into any empty expansion slot on your IBM PC. Use a flat blade screwdriver to remove the screw that holds the system expansion slot cover in place (turn the screw counterclockwise). Refer to Figure 2-2.

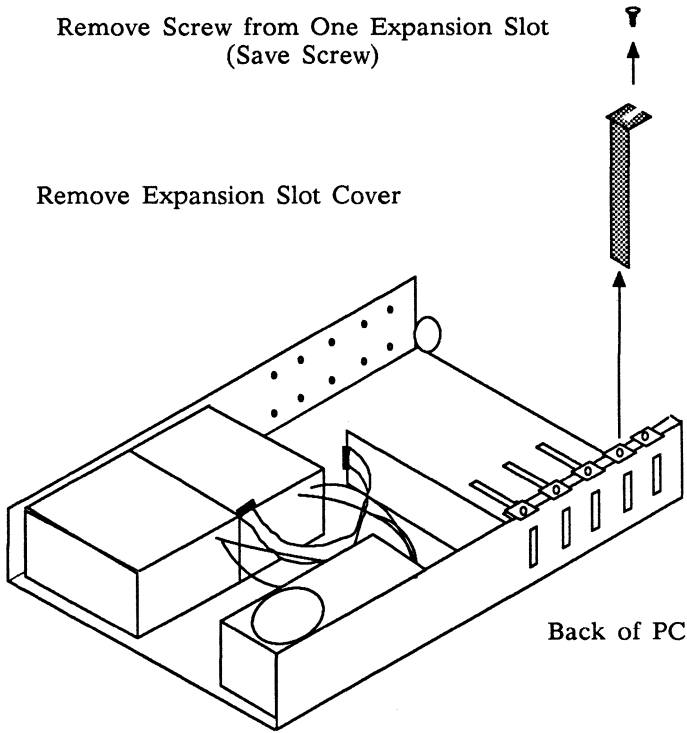


Figure 2-2: Removing the Slot Cover

Save the screw for aligning the card.

Inserting and Aligning the Card

Hold the card by both top corners and firmly press it into the expansion slot, being sure that the bracket slides into the PC board.

Align the hole in the IDEComm card retaining bracket with the hole in the rear panel of the IBM and insert through both the screw from the last step. Using a flat blade screwdriver, turn the screw clockwise.

Push IDEA Card into IBM Connector



Use Screw to
Secure Bracket

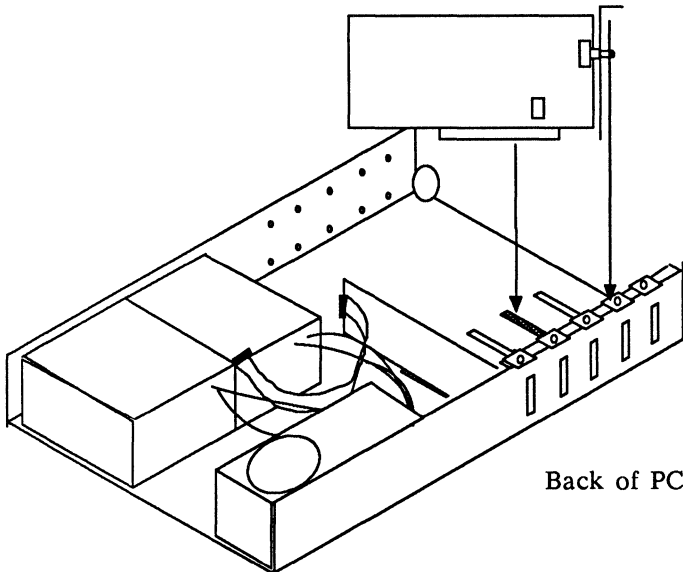


Figure 2-3: Inserting and Aligning the Card

Replacing the Cover

- If you have any other options to install, do so now.
- Replace the microcomputer cover and cover screws.
- If you have an AT, replace the back panel.
- Recable your system.
- Reattach any peripherals.

Section III:

Installing the Micro Channel Card



Use this section if you have a PS/2 model 50 – 80.

The IDEAcomm 5251/Plus micro channel card requires version 4.03 or higher of IDEAcomm software.

Installation Overview

Hardware memory and I/O addresses used by the IDEAcomm card are configurable by software. A configuration utility on the Reference Diskette supplied with the PS/2 uses a configuration file supplied by IDEA to set up the computer. The setup procedure for hardware can be summarized in the following steps.

1. Copy IDEA's configuration file @6060.ADF to the Reference Diskette.
2. Turn off the PS/2 and insert the card.
3. Boot with the Reference Diskette.
4. Run "automatic configuration" from within IBM's configuration program.
5. If this card is last on the Twinax cable run, "terminate" it.
6. Connect the TWINAX cable (Section IV).
7. Run **SETUP** from the accompanying diskette only if you will use PC/Support on the AS/400.

Automatic configuration of the hardware works as follows: Each card installed in a PS/2 computer has a unique ID number and a corresponding configuration file (ADF file), which contains the configuration parameters for that card. The card's ID number is in the configuration file copied to the Reference Diskette, which is used to boot up the computer.

During automatic configuration, the computer polls each expansion slot in the PS/2 for a card. It reads the ID number of each installed card and then checks for a corresponding number in the ADF filenames on the Reference Diskette. When a matching file is found, the computer reads down the list of configuration parameters in that file and assigns the first valid options available, avoiding address conflicts with any other cards installed. The configuration information is then saved in the computer's ROM.

Automatic Configuration

CAUTION

Before using either the IDEA diskette or the IBM Reference Diskette, make a copy of each and file the originals for safekeeping.

If you have the 4 LU board, use the files in the subdirectory 4LU on your diskette.

1. Copy your card's configuration file, @6060.ADF, from your IDEAComm diskette to a backup copy of IBM's Reference Diskette.
2. Power down and open the PS/2 (see instructions at the end of this section).
3. Plug the IDEAComm card (shown on the next page) into any free expansion slot in the PS/2. Refer to *Installing Options* in your IBM PS/2 manual.
4. Replace the PS/2 cover and recable your system.
5. Power up the PS/2 with the Reference Diskette (containing the IDEAComm ADF file) inserted in your diskette drive.

Note

The first time you boot up after installing the card, Error 165 (adapter configuration error) will appear on the screen. This is normal, as later explained in the program.

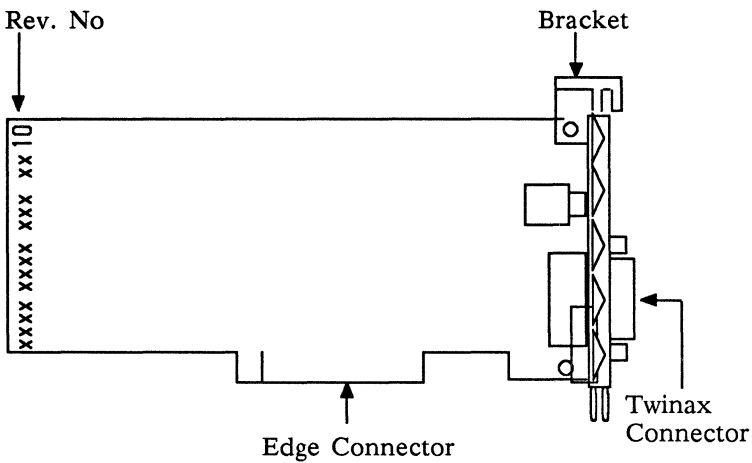


Figure 3-1: The IDEAcomm Micro Channel Card

6. Follow the program's instructions. Enter Y (Yes) to the question, "Automatically configure the system?"

When automatic configuration is completed, you are then instructed to reboot the system. First remove the Reference Diskette, and then press the Enter key to reboot.

Verifying Automatic Configuration

If you wish to verify the automatic configuration of the system, proceed as follows:

1. Reboot the computer from the IBM Reference Diskette.
2. From the Main Menu, enter Set Configuration (option 3).
3. From the Set Configuration Menu, press 1 to select View Configuration.

Each card installed is listed next to its respective slot number on the View Configuration Screen. If automatic configuration is successful, then the IDEA card will be listed on the View Configuration Screen as shown below:

Slot X – IDEAcmm 5251 [4 or 7] LU Card
Adapter Memory Location Segment xxxx
Adapter I/O Location [IO Base 0xxx]

Note

An asterisk beside either the I/O port or memory address indicates an address conflict between the IDEA card and another card installed in the PS/2. If this occurs, remove the conflicting hardware.

Manual Configuration

Manual configuration of the hardware gives you more control over the configuration process. Use manual configuration if you want a device to have a particular address, or if you want to verify the validity of each parameter as you enter it.

1. Complete steps 1–5 in the Automatic Configuration section.
2. From the Main Menu, enter Set Configuration (option 3).
3. From the Set Configuration Menu, press 2 to select Change Configuration. Enter and save your configuration parameters as directed. The configuration options provided in IDEA's ADF file are listed below:

I/O Port Configuration Memory Segment Address

I/O port 308	C000 (default)
I/O port 328	C400 ¹
I/O port 348	C800
I/O port 368 (default)	CC00 ¹
	D000
	D400 ¹
	D800
	DC00 ¹

¹ four-LU card only

Note

An asterisk beside either the I/O port or memory address indicates an address conflict. In most cases, this conflict can be resolved by simply selecting a different configuration value.

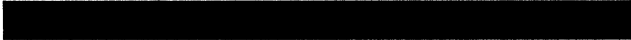
Opening the PS/2

These instructions, which are also in the IBM manual for your PS/2, are provided as an aid to the Automatic Configuration steps on page 3-3.

Preliminary Steps

- Turn off the PS/2 power switch.
- Turn off power to any peripheral devices (printer, monitor, hard disk, and so on.).
- Unplug the computer and all peripherals from the wall outlet.
- Carefully note where each cable is attached so that you can reattach them later. Disconnect all cables from the back of the PS/2.
- Unlock the PS/2 cover from the side of the unit.
- Loosen the two cover screws.
- Carefully slide the cover away from the unit.
- Insert the card in a free expansion slot.

Section IV: Termination and Cabling of the Card



Termination of the Card

In order for the equipment to function correctly, the last device on the TWINAX run must be terminated. (TWINAX run refers to the cable that connects to a controller.) Current hardware packages provide a termination switch on the T-connector. You can terminate older cards by using the termination switch on the back of the card or by attaching an external terminator to the end of the outbound TWINAX adapters.

Terminating from the T-Connector

After installing the card as indicated in Section II or III, make the twinaxial connection:

1. Connect the T-connector cable to the twinaxial connector (15 pin 'D' shaped connector) on the IDEAcmm card. Attach your twinax cable that runs from the IBM midrange or controller to one half of the T-connector.
2. If this is the last terminal on the cable run, set the switch on the T-connector to TERM. If this is not the last terminal, set the switch to THRU and connect another cable to the other half of the T-connector.

Caution

If IDEAcmm is not the LAST terminal on the TWINAX run, you must set the termination switch to THRU, not TERM.

If you have a terminator on the T-connector, you must set the termination switch to THRU.

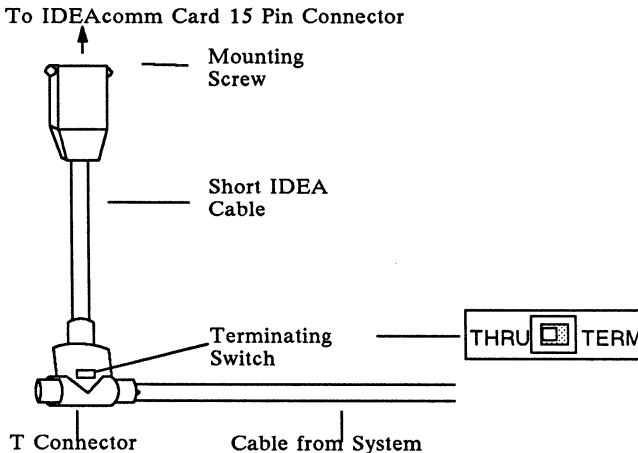


Figure 4-1: T Connector with Switch Set to THRU
(for All But Last Terminal on Run)

Terminating with the Switch on the Older Card

If the T-Connector does not have a TERM/THRU switch, you can terminate the card with its own switch. Locate the termination switch that protrudes through the retaining bracket on the IDEAComm card (Figure 2-1 or 3-1). Notice that the words TERM and THRU are etched in the metal bracket on the card. To terminate the card, flip the switch to TERM (toward the top of the card). To remove termination, flip the switch to THRU (toward the bottom of the card).

Note

If IDEAComm is not the LAST terminal on the TWINAX run, you must set the termination switch to THRU, not TERM.

Terminating Revisions B and C of the Older TWINAX Card

Revisions B and C of the TWINAX (not TWINAX Plus) cards use jumpers for TERM and THRU. See page C-12.

Terminating with an External Terminator

For information on attaching an external terminator, refer to Connecting the TWINAX Cable on the next page.

For information on creating a TWINAX run and installing it on the IBM controller, see Appendix B.

Connecting the TWINAX Cable

1. Locate the 15-pin male connector on the IDEA card. This connector protrudes from the rear panel of the IBM PC (Figure 4-2). Attach this connector to the 15-pin female TWINAX cable connector provided by IDEA. Tighten the two mounting screws using a flat blade screwdriver to turn the screws clockwise.
2. Attach the round end of the TWINAX cable connector to the T-connector. (Push the T-connector into the cable connector so that the key on the cable connector fits into the slot on the T-connector. Then twist the collar of the Twinax cable connector until it fits tightly onto the T-connector.)

Attach the TWINAX cable run (the cable that connects to the controller) to the T-connector.

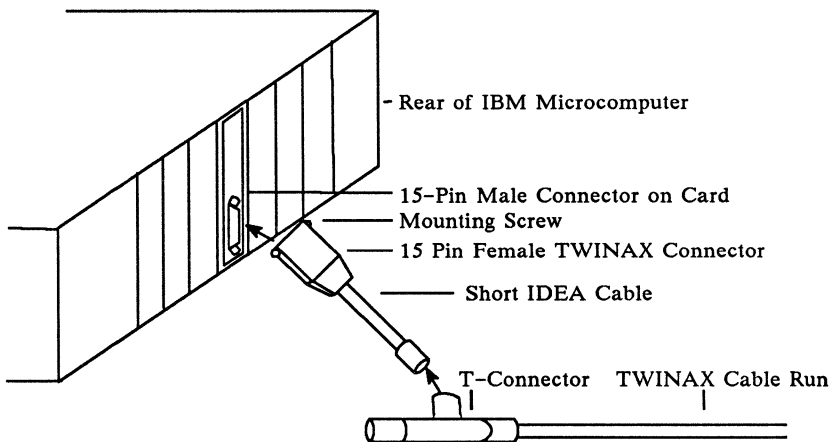



Figure 4-2: Connecting the Twinaxial Cable

Section V: Using PC Support on the AS/400



Overview

This IDEComm package allows an IBM PC or PS/2 to achieve a fully functional local communications link with IBM's AS/400 PC Support program. Files on your diskette contain software programs that serve as the installer and adapter handler. No other software is required on the microcomputer.

Overview of Steps

If you have a PC, XT, AT, or PS/2 Model 30, use Section II for hardware installation and Section V for software installation. If you have another model of the PS/2, use Section III for hardware installation and Section V for software installation.

Caution

If you have the 4 LU board, be sure to use the files in the subdirectory 4LU on your diskette.

Software Installation

Note

This product cannot be used at the same time as IDEAcomm 5251/Plus or 5251/Gateway Plus software (TWINAX). Do not invoke the TWINAX program when using this product.

On the AS/400, running IBM's PC Support with the IDEAcomm 5251 hardware requires the following procedures.

1. Run IBM's installation program, INSTALL, for PC Support as documented in your IBM manual. However, **do not reboot when instructed.**
2. Place the IDEA diskette in Drive A. Type:

A: <Enter>

Run the IDEA program SETUP to copy files from the IDEA diskette to the directory you choose and to specify the board memory and I/O addresses.

SETUP presents the following screen:

IDEAcomm 5251 Adapter Handler Version xx.xx Copyright (C) 198x IDEAssociates, Inc. SETUP - Configuration Program
Destination [disk][\directory\][batch file name] : C:\PCS\STARTPCS.BAT Hardware memory address: D000: Hardware I/O address: 0368
Use cursor keys to move between fields Type changes to selected field and press Enter to accept. Press <ESC> to exit program of <F1> for help.

Caution

Use care with the Enter key. This key accepts information only for the line where the cursor is positioned. If you change the memory or I/O address and then return to the line with the destination name and press Enter, the memory and I/O address will be changed back to the ones already stored.

If you have changed your PC card switches or used different addresses in the IBM Automatic Configuration program for the Micro channel card, change these addresses here. (The address is read from the TWINAX7.UCM file if one exists in the directory you select.)

In case an error message is displayed, use the cursor keys to move to another field if you cannot correct the error at once. Error messages are self explanatory.

3. **SETUP** copies the files from the IDEA diskette to the directory from which you will invoke PC Support. The IDEA software queries for the directory you want to use. (IDEA recommends the subdirectory C:\PCS, which is created by IBM's **INSTALL**. If you are using a two-diskette system and no hard disk, however, see the third example below.)

Some examples of entries for disk, directory, and file name are:

a. **C:SETUP**

In this case, the **SETUP** program will fill in C:\SETUP\STARTPCS.BAT.

b. **MINE**

In this case, the **SETUP** program will fill in **C:\PCS\MINE.BAT**.

c. **B:\AUTOEXEC**

In this case, **SETUP** fills in **B:\AUTOEXEC.BAT**. This is necessary if you are rerunning **SETUP** on a two-diskette drive system with no hard disk. In this case, **SETUP** prompts you to insert your working diskette **DSKT01** in drive **B**. **DSKT01** is the diskette that **IBM's** **INSTALL** program created.

4. **SETUP** makes the necessary changes to the **IBM** batch file **STARTPCS.BAT** (or to the batch file that you specify) to allow you to use **IBM's** software with the **IDEA** hardware. The most notable change is that it replaces **E5250AH.COM** or **WSEAH.COM** with **IDEAH.EXE** in the **.BAT** file. **SETUP** also makes a copy of the original file, renaming it **filename.BAK**.
5. Reboot.
6. Continue with **IBM's** instructions for further configuration, running **PC Support**, and transferring files.

Restrictions on Rerunning Setup

Each time you install an old or new version of IBM PC Support (or run IBM's INSTALL program for any reason), you must repeat the steps above.

Note for Users of Two-Diskette Systems

On a two-diskette drive system, the IBM INSTALL program puts the call to STARTPCS.BAT in the file AUTOEXEC.BAT in directory PCS on Drive B (DSKT01). When you first run SETUP, it checks for this location of the file. However, if you later rerun SETUP, be sure to insert IBM's Diskette-01 in Drive B, and to indicate the location of the file. See example 3 on page 5-4 above.

IDEA recommends that you enter B:AUTOEXEC as the file location on the SETUP screen. If you instead enter B:\PCS\STARTPCS, you must enter again any changes you originally made to I/O and memory address, as these changes were saved in AUTOEXEC.BAT, but not in STARTPCS.

If SETUP gives you the message **Invalid Configuration path or file name**, check that you have the correct diskette in the drive you indicate. IBM's DSKT01 has AUTOEXEC.BAT; DSKT02 has PCS\STARTPCS.

Messages from IDEA Software

When called from STARTPCS or another batch file, IDEAH.EXE may produce the following messages:

IDEA 000: Unidentified Error Occurred

Reboot and repeat the steps at the beginning of this section. If the error persists, call IDEA Technical Support.

IDEA 002: File I/O Error, .UCM file not found (name)

The file TWINAX7.UCM (or TWINAX4.UCM) was not found in the directory expected.

IDEA 003: File I/O Error, .MC file not found (name)

The file IDEAH.MC was not found in the expected directory.

IDEA 004: File I/O Error, Access Denied (name)

One of the files listed in Section I is restricted, hidden, or being used by another program. The pathname also may not be typed correctly.

IDEA 005: Insufficient File Handles (name)

The CONFIG.SYS file does not allow enough files to be open at once. Add the command **FILES=20** to the CONFIG.SYS file and retry.

IDEA 006: I/O Error accessing Configuration File (name)

The file TWINAXn.UCM is damaged or is not in the expected directory. Be sure that you have only one of the files TWINAX4.UCM or TWINAX7.UCM. If necessary, recopy it from the IDEA diskette.

IDEA 007: Memory Test Failure

The screen buffer test was executed and failed. Verify that the board setting for the PC memory address matches that set in SETUP.EXE. Verify that the address set for the micro channel card by the IBM Reference Diskette matches SETUP.EXE.

IDEA 008: I/O Error accessing Microcode File

The file IDEAH.MC is damaged, has the wrong version number, or has been stopped.

IDEA 009: PS/2 Configuration Error

The IDEAcomm micro channel card either is not installed or cannot be found.

IDEA 010: PS/2 Installation Error

The configuration could not be determined from values read from the card. The ADF file may be corrupted; recopy it to the IBM Reference Diskette and rerun the IBM configuration program. If the message persists, call IDEA Technical Support.

IDEA 012: Adapter already in use

Either the program TWINAX.EXE is running, or the IDEA PC Support software is already running. If TWINAX.EXE is running, remove it from memory (deinstall it).


IDEA 013: Microcode loaded and running

The IDEA software was successfully started.

IDEA 014: Display adapter not supported

The PC or PS/2 is using an adapter not supported, such as the PCjr display adapter.

Appendix A: The TWINDIAG Diagnostic Program



Running the Program

In order to run the TWINAX Diagnostic Program, set the termination switch to the TERM position (see Figure 4-2). Note that the following files are required and should be copied to the hard disk:

TWINDIAG.EXE
TWINAX7.UCM
Z80MEM.TSK

Note

The older program TWINDIAG.COM, if it exists in the same directory, must be deleted or renamed before you enter the command TWINDIAG.

Type the following at the DOS prompt:

TWINDIAG <Enter>

You see the following menu:

TWINDIAG Version x.x Copyright (C)199x IDEAssociates, Inc.	
What option would you like? 1	
<input type="text" value="General Diagnostics"/>	
Printer Dump	
Memory Burn In Test	
Use Up/Down arrows, Press ENTER to select or ESC to Exit	

Figure A-1: TWINDIAG Main Menu

Use the arrow keys to select a test, or type in the number of the test.

TWINDIAG General Diagnostics

To assure that this first test performs correctly, you should disconnect the card's cable from the host or controller. (TWINAX should not be resident.) If your card passes this diagnostic you will see a screen similar to the one shown in Figure A-2.

```
TWINDIAG Ver. x.x Copyright (C)199x IDEAssociates, Inc.
-----
MEMORY MAP ==>  C0000 ==> NO MEMORY FOUND
                  C4000 ==> NO MEMORY FOUND
                  C8000 ==> Non IDEA MEMORY FOUND
                  CC000 ==> NO MEMORY FOUND
                  D0000 ==> NO MEMORY FOUND
                  D4000 ==> NO MEMORY FOUND
                  CD000 ==> MEMORY FOUND for H/W Addr ==> 0308
                  .
                  .
                  .
                  F4000 ==>NO MEMORY FOUND
TWINDIAG-061     TESTING PAGE (n)
.
==>Testing H/W Address 0308 with Memory at DC00 <==
TWINDIAG-016     MEMORY TESTS PASSED.
TWINDIAG-020     INITIAL TRANSMITTER TEST PASSED.
TWINDIAG-022     TRANSMITTER/RECEIVER LOOPBACK TEST PASSED

(These diagnostics repeat for any other addresses/cards found)
                  Press <Enter> to continue
```

Figure A-2: Example of Screen from TWINDIAG
(IDEA Card is Disconnected from the Host or Controller)

The screen shows:

1. All memory on all cards in one Server
(Non-IDEA MEMORY indicates another manufacturer's adapter card.)
2. For the each I/O port address in turn, messages appear as TWINDIAG tests the card. Message explanations start on page A-4.

After all cards are tested, Enter returns you to the main menu.

If you want to know what station addresses the system found that are currently active on the TWINAX run, do not disconnect the cable from the card. The diagnostic test will not be run, but a screen similar to the one shown in Figure A-3 will be displayed.

```
TWINDIAG Ver x.x Copyright (C)199x IDEAssociates, Inc.

MEMORY MAP ==> C000 ==> NO MEMORY FOUND
              C4000 ==> NO MEMORY FOUND
              C8000 ==> NO MEMORY FOUND

              .
              DC000 ==> MEMORY FOUND for HW Addr =>0308

==> Testing H/W Address 0308 with memory at DC00 <==
TWINDIAG-016 MEMORY TESTS PASSED.
TWINDIAG-018 LINE ACTIVE - UNABLE TO PERFORM
              TRANSMITTER TESTS. DISCONNECT
              CABLE FOR COMPLETE DIAGNOSTICS.
              NOW PERFORMING LINE ACTIVITY TESTS etc.

STATION==> 0    PENDING
              ==> 1    PENDING
              ==> 2    ONLINE
              .
              .
              ==> 6    OFFLINE
              Press <Enter> to return to Main Menu
```

Figure A-3: Example of Screen from TWINDIAG (IDEA Card is Connected to the Host or Controller)

The words to the right of STATION have the following meaning:

- ONLINE: The station was addressed by the host and responded.
- OFFLINE: The station was not addressed by the host.
- PENDING: The station was addressed by the host and did not respond.

Printer Dump from TWINDIAG

This is not supported with the hardware only package.

Memory Test from TWINDIAG

This tests memory on the IDEAcomm card. You see a display similar to the following:

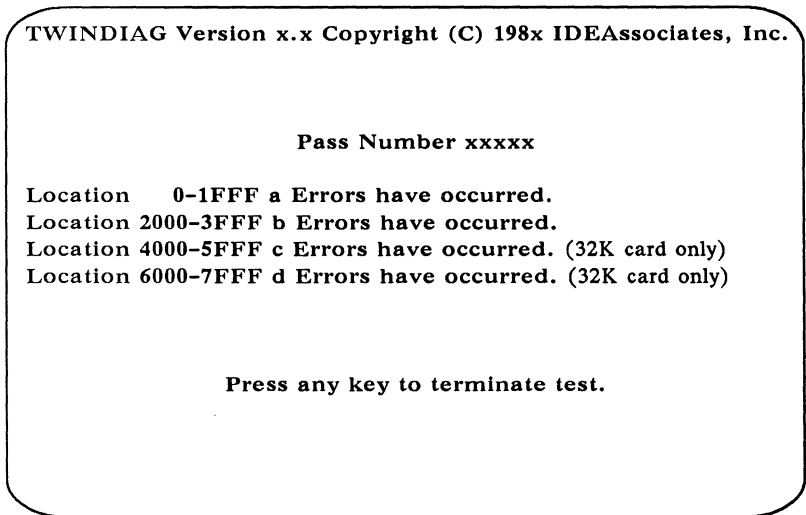


Figure A-4: TWINDIAG Memory Test

This test continues until you press any key.

If you are having problems with your card and this test shows errors, report the errors to IDEA Technical Support.

TWINDIAG Error Messages

TWINDIAG-001 MEMORY TEST PC SIDE FAILED LOWER BANK ZERO FILL.

The memory located from 0 Hex to 1FFF Hex did not retain zeros stored there.

TWINDIAG-002 MEMORY TEST PC SIDE FAILED UPPER BANK ZERO FILL.

The memory located from 2000 Hex to 3FFF Hex did not retain zeros stored there. The memory located from 0 Hex to 1FFF Hex did not retain the value of 0FF Hex stored there.

TWINDIAG-003 MEMORY TEST PC SIDE FAILED LOWER BANK 0FFH FILL.

The memory located from 2000 Hex to 3FFF Hex did not retain the value of 0FF Hex stored there.

TWINDIAG-004 MEMORY TEST PC SIDE FAILED UPPER BANK 0FFH FILL.

Memory not found at the location specified in the configuration file.

TWINDIAG-005 CONFIGURATION ERROR -- UNABLE TO CONTINUE.

There has been an error during an attempt to load data from TWINAX7.UCM. If you have Revision 10 or 11 of the 5251/Gold card, see the note on memory addresses on page 2-1.

TWINDIAG-006 MEMORY FAILURE -- UNABLE TO CONTINUE.

The memory has failed at least one test.

TWINDIAG-007 UNABLE TO LOAD CONFIGURATION FILE -- DIAGNOSTICS ABORTED

There has been an error during an attempt to load data from TWINAX7.UCM.

**TWINDIAG-008 MEMORY TEST PC SIDE
FAILED ADDRESS TEST.**

The memory as seen by the PC or PS/2 has failed an address integrity test.

**TWINDIAG-009 Z80 MEMORY TEST FILE
NOT FOUND.**

There has been an error during an attempt to load the Z80MEM.TSK file.

TWINDIAG-010 Z80 FAILED STARTUP.

An attempt to start the Z80 has failed.

**TWINDIAG-011 MEMORY TEST Z80 SIDE
FAILED LOWER BANK ZERO FILL.**

The memory located from 0 Hex to 1FFF Hex failed to retain zeros stored there.

**TWINDIAG-012 MEMORY TEST Z80 SIDE
FAILED UPPER BANK ZERO FILL.**

The memory located from 2000 Hex to 3FFF Hex failed to retain zeros stored there.

**TWINDIAG-013 MEMORY TEST Z80 SIDE
FAILED LOWER BANK 0FFH FILL.**

The memory located from 0 Hex to 1FFF Hex failed to retain the value of 0FF Hex stored there.

**TWINDIAG-014 MEMORY TEST Z80 SIDE
FAILED UPPER BANK 0FFH FILL.**

The memory located from 2000 Hex to 3FFF Hex failed to retain the value of 0FF Hex stored there.

**TWINDIAG-015 MEMORY TEST Z80 SIDE
FAILED ADDRESS TEST.**

The memory as seen by the Z80 has failed an address integrity test.

TWINDIAG-016 MEMORY TESTS PASSED.

The memory has passed all tests.

TWINDIAG-017 Z80 NOT RESPONDING TO REQUEST

The Z80 has not responded to a command in the allotted time. It may be receiving data from a controller.

TWINDIAG-018 LINE ACTIVE -- UNABLE TO PERFORM TRANSMITTER TESTS. DISCONNECT CABLE FOR COMPLETE DIAGNOSTICS.

The receiver is receiving data that originates outside of this card, that is, from a controller. Leaving the cable connected will allow station addresses to be located. Disconnecting the cable will allow transmitter tests.

TWINDIAG-019 TRANSMITTER TIME OUT -- TRANSMITTER FAILURE -- ABORTED.

The simple transmitter test has failed.

TWINDIAG-020 INITIAL TRANSMITTER TEST PASSED

The simple transmitter test has passed.

TWINDIAG-021 LOOPBACK TEST FAILED

A simple loopback test has failed.

TWINDIAG-022 TRANSMITTER/RECEIVER LOOPBACK TEST PASSED

The loopback test has passed.

TWINDIAG-023 FIFO TEST FAILED

The FIFO register failed to hold exactly 16 words.

TWINDIAG-024 FIFO TEST PASSED.

The FIFO register has been tested and confirmed to 16 words deep.

TWINDIAG-025 INVALID PARAMETER SPECIFIED.

An invalid parameter was specified on the command line.

TWINDIAG-026 PS/2 ERROR – BOARD NOT INSTALLED

The PS/2 expansion slots were polled to locate the card ID number, and the IDEAcomm micro channel card was not found.

TWINDIAG-027 PS/2 ERROR – POS REGISTER 2 FAILURE

Programmable Option Select Register 2 test failed. The problem may be card related. Call IDEA Technical Support for assistance.

TWINDIAG-028 PS/2 ERROR – POS REGISTER 3 FAILURE

Programmable Option Select Register 3 test failed. The problem may be card related. Call IDEA Technical Support for assistance.

TWINDIAG-029 PS/2 ERROR – COULD NOT DETERMINE BOARD CONFIGURATION

The configuration could not be determined from values read from the card. The ADF file may be corrupt, or the problem may be card related. Call IDEA Technical Support for assistance.

TWINDIAG-030-3 INTERRUPT n TEST ON THE MICRO-CHANNEL BOARD PASSED

The IDEA micro channel board is set for interrupt n and working.

TWINDIAG-034 TWINAX NOT RESIDENT, UNABLE TO PERFORM PRINTER DUMP

To perform the printer dump, be sure that TWINAX is loaded (type TWINAX and press Enter), and resident (press Shift-Shift). Then invoke TWINDIAG.

TWINDIAG-035 NO PRINTERS CONFIGURED, PRINTER DUMP ABORTED

You must have at least one printer configured with IDEACFIG or INSTALL in the software package.

TWINDIAG-035 EMULATION MICROCODE IS RUNNING

Twinax emulation microcode is running on an IDEA card. Return to emulation, exit, and terminate the microcode. Then run TWINDIAG.

TWINDIAG-036 DUPLICATE CONFIGURATION FILES TWINAX4.UCM AND TWINAX7.UCM FOUND

Rename or delete one of the files before running TWINDIAG.

TWINDIAG-037 TWINAX MICROCODE NOT RUNNING. UNABLE TO PERFORM PRINTER DUMP

Emulation should be running with at least one printer configured before you execute TWINDIAG's printer dump.

TWINDIAG-038 WARNING! THIS TEST WILL HALT TWINAX MICROCODE. SESSIONS WILL HAVE TO BE RESTARTED.

Twinax emulation microcode is running on the IDEA card. Return to emulation, exit, and terminate the microcode.

TWINDIAG-039 TWINAX IS RESIDENT, UNABLE TO PERFORM DIAGNOSTICS.

Twinax emulation microcode is running on an IDEA card. Return to emulation, exit, and terminate the microcode.


TWINDIAG-040 NO PRINTERS CONFIGURED.

The Printer dump runs only on printer sessions.

TWINDIAG-051-054 INTERRUPT n TEST FAILED

The IDEA card is not set for this interrupt.

Appendix B: Attaching the IDEA TWINAX Line to IBM Remote Controllers



The IDEAComm card can be attached to the IBM 5251 Model 12 or IBM 5394 remote controller for the IBM System 3X. (The 5394 can be set up as a 5294 controller, also.)

Since an IBM controller is limited in the number of devices it can support, check your controller to determine the maximum number of devices you can attach. Note that the configuration of the 5251 Model 12 differs from the configuration of the 5394/5294. The following text describes how to reconfigure your 5394/5294 or 5251 Model 12 when you add the IDEAComm card.

Adding IDEAcmm to a 5394/5294 Remote Controller

1. Verify that all workstations (terminals and printers) are powered ON. (Note that the 5394/5294 does not recognize any device that is powered off.)
2. Check the TWINAX cables on all display devices and printers to be sure they are firmly attached.
3. At the PC or PS/2 with the IDEAcmm card, load TWINAX and go into emulation. The cursor will be at the upper right corner of the screen.
4. At the 5394/5294 controller, set the TEST/NORMAL switch to TEST, then set the POWER switch to ON.
5. From any display station (5251 11, 5291 1, 5292, 3180, 3196) or from a microcomputer with IDEAcmm emulation loaded, press the CMD key, then the BACKSPACE key. This allows the 5394/5294 to recognize the devices attached to its ports.

A setup screen displays the attached devices. Verify that the station addresses correspond to the work stations and printers you attached. If this screen does not accurately reflect the attached devices, refer to the *IBM Setup Procedure for the 5394* for instructions. Press the Enter key twice to save the configuration.

Note

The system operator at your host site must now configure a new device at the host if he or she has not already done this.

Adding IDEComm to a 5251 Model 12 Remote Controller

The switch settings on the Port Selector Switch Bank (located on the back of the 5251 Model 12) determine which ports are active. Refer to Table B-1 for appropriate switch settings. The 5251 Model 12 periodically polls ports that are active to determine which devices are currently on line.

Attaching IDEComm to an Existing TWINAX Run

If a TWINAX run is already attached to an active port, you do not need to change the Port Selector Switch Bank settings when adding IDEComm.

Creating a New Run


If you have the first device on a Model 12 port, you must set the Port Selector Switch Bank switches to activate the port. (Refer to Table B-1 for appropriate switch settings.)

At the host, if a new device is varied on and the Port Switch Setting switches are incorrect, a **DEVICE MISMATCH ERROR** occurs when the controller is connected to the host System 3X.

Switch Settings on the 5251 Model 12 Controller

Table B-1: Port Selector Switch Bank Settings for 5251 Model 12				
Switch Settings				
Active Ports	1	2	3	4
1	OFF	OFF		
1, 2	OFF	ON		
1, 2, 3	ON	OFF		
1, 2, 3, 4	ON	ON		
5			OFF	OFF
5, 6			OFF	ON
5, 6, 7			ON	OFF
5, 6, 7, 8			ON	ON

Appendix C: Switch Settings for Older PC Cards



This appendix is for users with the PC and PS/2 Model 30 series. Cards are listed newest first.

A Note on Memory Addresses

The memory address of the IDEA card is set automatically. Please note that some versions of Revisions 10 and 11 of the 5251/Gold PC card support memory addresses C000, D000, and E000. All other revisions of the 5251/Gold card, 5251/Plus short card, and 5251/Plus Revisions D and E support addresses C000, C800, D000, D800, E000, and E800.

5251/Gold Cards Revision 10 and Higher

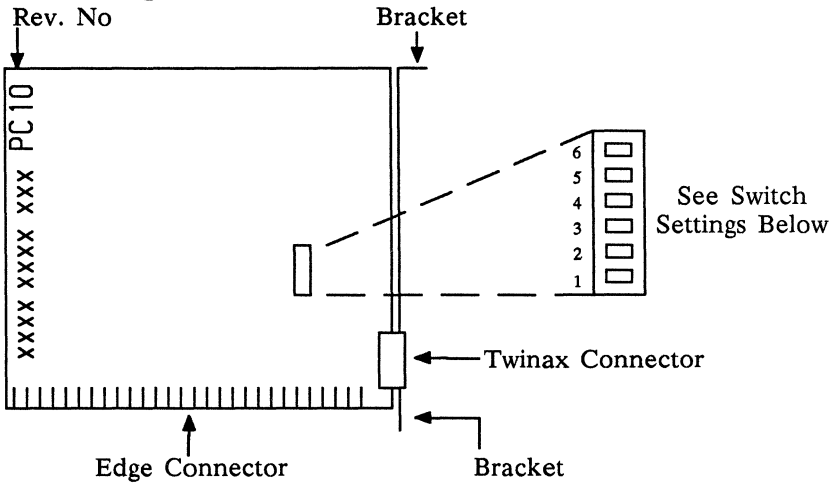


Figure C-1: Revision 10 and Higher

The switch positions are set at the factory for I/O address 368-369. Change the default setting if you have another card with the same I/O address.

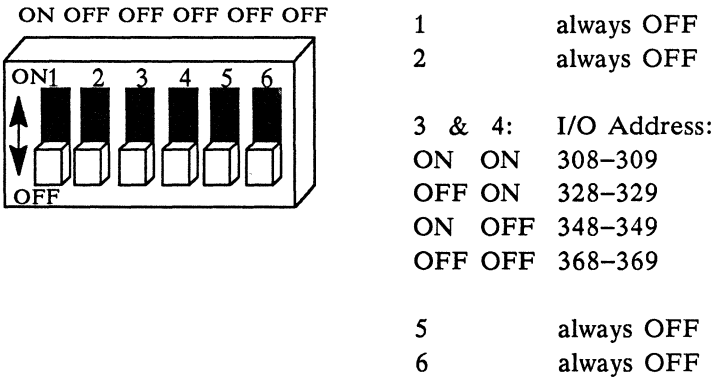


Figure C-2: Revision 10 Switch Settings

The Short Card

Below is a diagram of the IDEComm 5251/Plus short card.

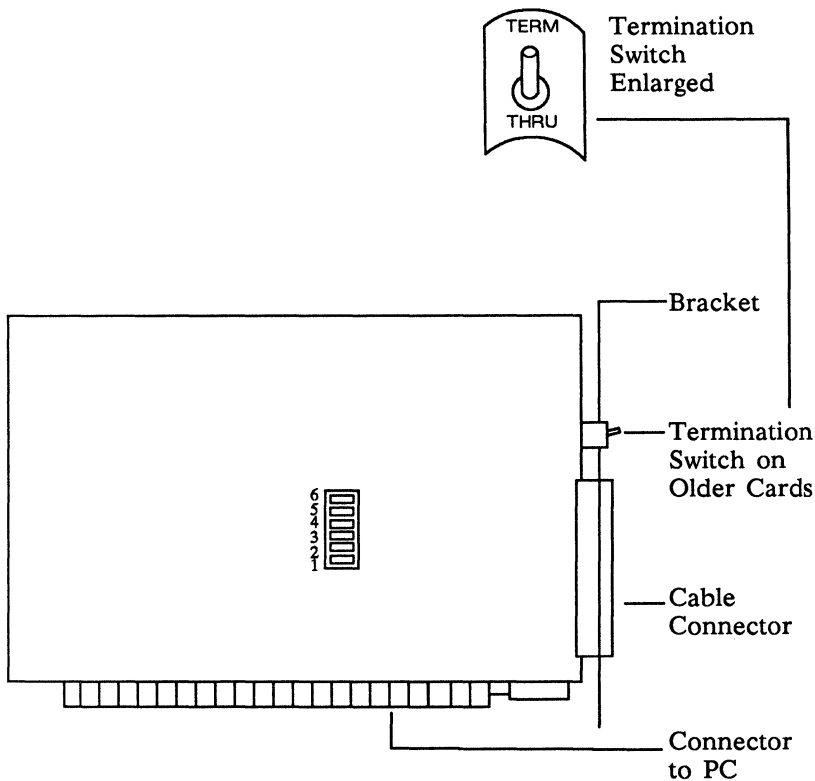


Figure C-3: The IDEComm 5251/Plus PC Short Card

The settings for the switch bank are as follows:

Position	Meaning	Default Setting
1	Reserved:	OFF
2	Reserved:	OFF
3 & 4	I/O Address: ON ON 308-309 OFF ON 328-329 ON OFF 348-349 OFF OFF 368-369	OFF OFF (368-369)
5	Reserved:	OFF
6	Reserved:	OFF

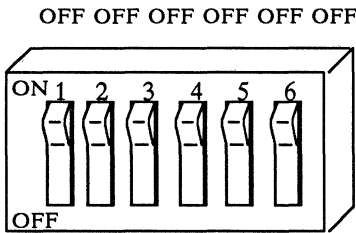


Figure C-4: Switch Settings for Short Card

TWINAX Plus Rev. D and E Cards

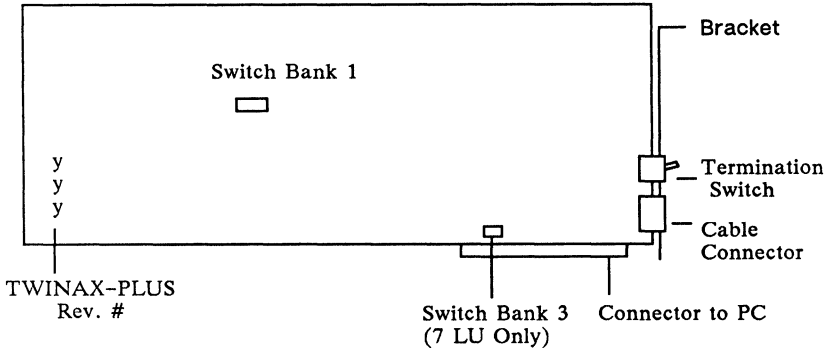


Figure C-5: The IDEAComm 5251 or 5251/Plus Card Rev. D and E

Memory on the Rev. D and E Cards

The memory address for the TWINAX-PLUS Rev. D and E cards is configured through the program INSTALL or IDEACFIG. You do not need to check anything on the card.

If you use the INSTALL program, the memory address is set by the software automatically depending on your options, and is written to the TWINAXn.UCM file.

If you use the IDEACFIG program, you should enter the appropriate memory address on the User Interface Options menu. If you are using an IBM PC, XT, or Portable, enter E000. If you are using an IBM AT or PS/2 with a standard monitor, enter C000. If you have an AT with an EGA monitor, enter C800.

Switch Bank 1: I/O Address

The switches on switch bank 1 were set to 368 Hex at the factory and should look like those shown in Figure C-6:

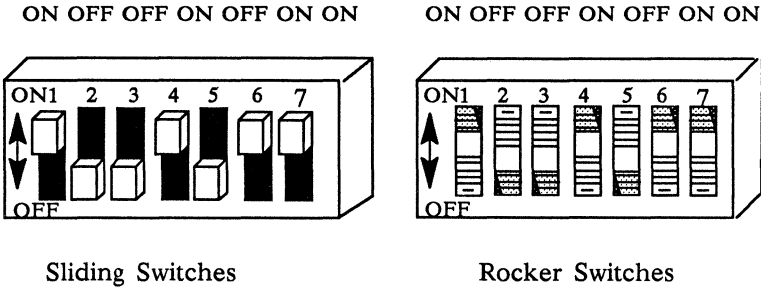


Figure C-6: Switch Bank 1: I/O Address 368 Hex (Rev. D and E Cards)

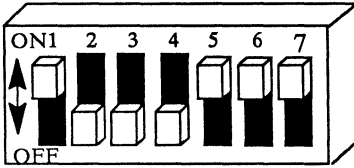
Note

To set sliding switches, simply slide the tab to the ON or OFF position.

To set rocker switches, press down the ON side of the switch to set it to ON or press down the OFF side of the switch to set it to OFF. Use care when setting rocker switches.

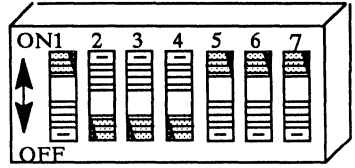
If you need to change to address 370 because of a conflict with another card, use the setting in Figure C-7:

ON OFF OFF OFF ON ON ON



Sliding Switches

ON OFF OFF OFF ON ON ON



Rocker Switches

Figure C-7: Switch Bank 1 — I/O Address of 370 Hex (Rev. D and E Cards)

In order to set the hardware I/O Address to 370 Hex, you must also run the IDEACFIG program on the IDEAcomm diskette. You must change the Hardware I/O Address displayed on the User Interface Options menu to reflect the new I/O Address of 370 Hex.

Switch Bank 3 – 7 LU Boards Only

This switch is used only on the 32K (7 LU) product. In Release 5.2, all switches are set OFF on this switch.

TWINAX Plus Rev. C

Settings

The TWINAX-PLUS REV. C card is functionally equivalent to the TWINAX-PLUS Rev. D card. However, because the design of the TWINAX-PLUS Rev. C card is slightly different, you must use the switch settings listed here.

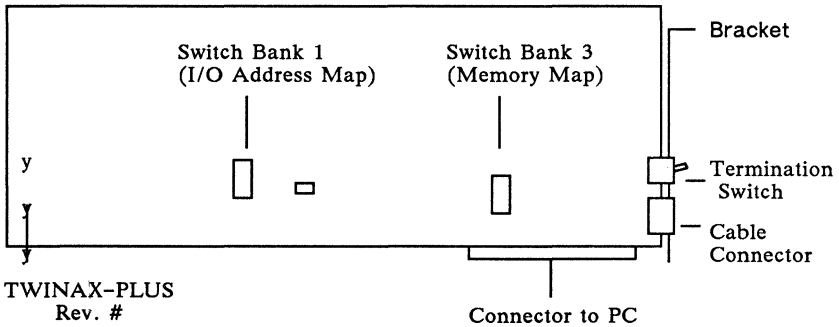


Figure C-8: The IDEAcomm 5251 Card Rev. C

Note

To set sliding switches, simply slide the tab to the ON or OFF position.

To set rocker switches, press down the ON side of the switch to set it to ON or press down the OFF side of the switch to set it to OFF. Use care when setting rocker switches.

Switch Bank 3 -- Memory Address for IBM PC, XT, Portable

Your TWINAX-PLUS Rev. C card is set at the factory with a memory address of E000.

Note that there are two different settings for switch bank 3. Address E000 (the factory setting) is for an IBM PC, XT, or Portable, as shown in Figure C-11:

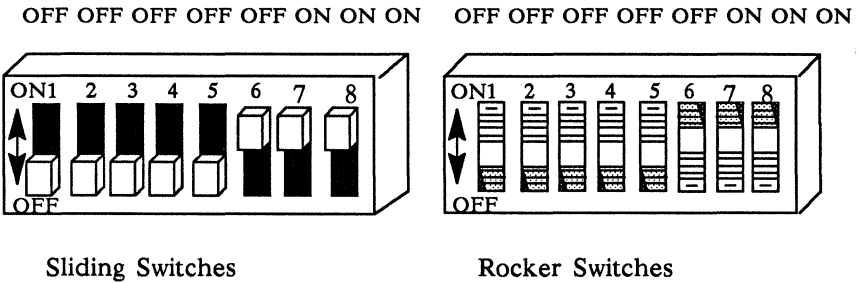


Figure C-11: Switch Bank 3--Factory Setting E000 for PC, XT, and Portable (Rev. C Card)

Switch Bank 3 --Memory Address for IBM AT

If your IBM personal computer is an IBM AT, you must reset your switches to an address of C000. An AT with VGA may use C000 for VGA, so you might use D800 for the IDEA card. See the table on the next page.

Changing Switch Bank 3 Settings

Switch settings on bank 3 have the following meanings:

Switch	C000	C400	C800	D000	D800	E000
3	OFF	OFF	OFF	OFF	OFF	OFF
4	OFF	OFF	OFF	OFF	OFF	OFF
5	ON	ON	ON	ON	ON	OFF
6	ON	ON	ON	OFF	OFF	ON
7	ON	ON	OFF	ON	OFF	ON
8	ON	OFF	ON	ON	ON	ON

The settings for switches 1 and 2 remain unchanged.

Notes

Please consult the possible restrictions on memory addresses for this card on page C-13.

In order to change the hardware Memory Address, you must also run the IDEACFIG program on the IDEAcomm 5251 diskette. You must change the Hardware Memory Address displayed on the User Interface Options menu to reflect the new Memory Address of D000.

TWINAX Rev. A, B, and Older C Settings

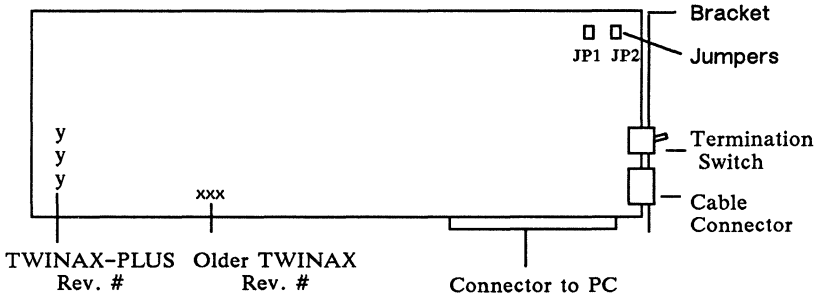
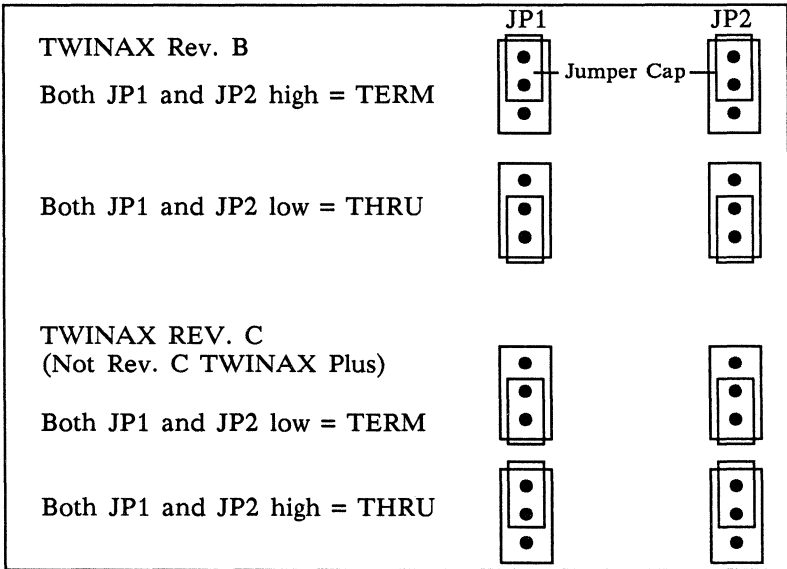


Figure C-12: The IDEComm PC Card Rev. A, B, C
Some of these cards use jumpers instead of a switch for TERM and THRU:



See the chart on page C-14 for a quick reference of switch settings.

Be aware that the following addresses may be restricted on your IBM personal computer:

A0000 through BE000 – Display adapters
C0000 – IBM 3270 PC Adapter
C8000 – XT Fixed disk or SCSI device
CA000 – IBM 3270 PC Adapter
CC000 – primary IBM LAN adapter
CE000 – 3278/79 Emulation Adapter
D000 through D6000 – PC Cluster
DA000 – Voice Communications
Adapter
D8000 – Token Ring overhead
DC000 – Alternate IBM LAN Adapter
– (PC Network or Token Ring)
E0000 through FE000 – System ROM

Quick Reference Chart for TWINAX Switches

Memory Address (Factory Setting C000 or E000)

5251 Card	IBM PC Type	Memory Address	Switches OFF	Switches ON
OLD TWINAX Rev. A,B,C Switch Bank SW2	PC,XT,PPC, PS/2M30	E000	12345	678
	AT	C000	1345	2678
	AT & EGA	C400 C800	13456 13458	278 267
TWINAX-PLUS Rev. C Switch Bank SW3	PC,XT,PPC, PS/2M30	E000	12345	678
	AT	C000	1234	5678
	AT & EGA	C400 C800	12348 12347	567 568
	AT & VGA	D800	123467	58
TWINAX-PLUS Rev. D, E	All	n/a	n/a	n/a
Short Card	All	n/a	n/a	n/a
5251/Gold	All	n/a_(see p.C-1)	n/a	n/a

I/O Address (Factory Setting 368 Hex)

5251 Card	I/O Address	Switches OFF	Switches ON
OLD TWINAX Rev. A,B,C Switch Bank SW1	368 Hex	358	12467
TWINAX-PLUS Rev. C Switch Bank SW1	368 Hex	235	14678
TWINAX-PLUS Rev. D, E Switch Bank SW1	368 Hex	235	1467
Short Card	368 Hex	34	1256
5251/Gold	368 Hex	34	1256

PPC: IBM Portable PC
EGA: Enhanced Graphics Adapter

Appendix D:

Glossary



ADF File

File containing address information for the micro channel card. It must be transferred to the IBM Reference Diskette before automatic or manual configuration is run with this diskette.

Backup

A duplicate copy of data.

Board

In this manual, **board** and **card** are used interchangeably for the small printed circuit boards that can be added to the IBM PC or PS/2 family.

Boot

To bring up or restart the microcomputer.

Bootable

Used of a partition or disk to which command transfers at startup time. A diskette or partition is **bootable** if it contains the DOS files that will start the operating system when the IBM is powered on.

Card

In this manual, **card** and **board** are used interchangeably for the small printed circuit boards that plug into the IBM.

Disk operating system (DOS)

An operating system for the IBM PC and PS/2 series of computers.

Driver

Software that controls a device.

I/O address

The address through which data is sent from the personal computer. This is set with switches on the IDEA card.

INSTALL (IBM program)

The program that installs PC Support on the personal computer.

Memory address

The address of the card's memory (A000 through E000). This address is set with software on most IDEA cards.

Micro channel card

A card or board that works in the micro channel bus of the PS/2 models 50 and higher.

Midrange

The IBM System 34, 36, 38, or AS/400.

Parallel port

Interface located on a host adapter card used for connection with a parallel device such as a printer or mouse. It provides parallel transmission, which is simultaneous transmission of all bits in a byte.

PC Support

An IBM program that allows file transfer and other functions between a personal computer and an IBM midrange.

Peripheral

A noncomputing input or output device, such as a printer or hard disk drive.

Port

A connection that allows communications between the IBM and another device.

Reference Diskette

The IBM diskette that comes with your personal computer.

Remote IBM controller

A computer that connects to the minicomputer through telephone lines, and coordinates signals from several devices.

SETUP program

The IDEA program that sets addresses for the Adapter Handler that allows PC Support.

Serial (COM) port

Common serial communications interface used by devices such as modems and laser printers. It allows serial transmission, whereby data is sent in a regular pattern of bits.

System 3X

The IBM System/34, /36, or /38.

TWINAX

The IDEA emulation program or card. Twinaxial cable is a type of cable used in IBM midrange installations.

TWINAX run

A series of one or more devices all on the same twinaxial cable that connects to the controller.

Appendix E:

IDEA Products

For information or to order these products, call IDEA at (800) 257-5027. In Massachusetts call (508) 663-6878.

Controllers

IDEA Concert 394 remote controller features 5294 and 5394 compatibility with support for multi-host, multiple logical controllers and multiple logical sessions, in addition to a modular design for field upgrades.

Communications -- Micro to Midrange

IDEAcomm 5251/Plus provides a local twinaxial communications link with IBM midrange systems or remote controllers. The package provides 7 host sessions in four windows, and offers graphics support through 5292-2 terminal emulation.

IDEAcomm 5251/OS allows a 286/386 based PC running under OS/2 to communicate with local midrange systems. It is a Presentation Manager application, providing multi-window displays with graphics and mouse support.

IDEAcomm 5251/Gateway Plus is a resource sharing package that allows multiple PCs or PS/2s attached to an IBM NetBIOS[™] compatible local area network to link with an IBM midrange using just one IDEAcomm 5251 emulation board. Non-networked PCs may access the midrange through a modem or an RS232C line with a networked Gateway server.

IDEAcomm 5250/Remote provides remote access for PCs or PS2s to an IBM mid-range system via an external synchronous modem by emulating 5251 series terminals, printers, and cluster controllers.

IDEAcomm 5250/Remote Share is a resource sharing product designed for the IDEAcomm 5250/Remote card that allows four remote PCs or PS/2s to communicate with a System 3X.

IDEAcomm 5250/Remote Gateway links remote PCs or PS/2s attached to an IBM NetBIOS compatible LAN to an IBM mid-range system with only one IDEAcomm 5250/Remote card.

IDEAcomm Mac provides local access for the Macintosh II and Macintosh SE to IBM 36 or 38 and AS/400 systems. Features include display and printer emulation and bi-directional file transfer.

IDEAcomm 5251/AH, IDEAcomm 5251/Gateway AH, and IDEAcomm 5250/Remote AH provide connections to AS/400 PC Support.

Communications -- Micro to Mainframe

IDEAcomm 3278 links PC products to a 3270 mainframe by emulating a 3278/79 display terminal through coaxial attachment to a 3X7X controller. It supports APL, IBM, and IRMA keyboard layouts.

IDEAcomm 3270/SDLC supports remote communications with an IBM mainframe via a synchronous modem utilizing the SNA/SDLC protocol. Eight concurrent host sessions provide support for 3278/79 terminal, 3287 printer and 3X7X controller emulations.

IDEAcomm 3270/SDLC-GW provides a remote Gateway for NetBIOS compatible Local Area Networks to link to an IBM SNA/SDLC mainframe environment via a synchronous modem. Four Gateways give 32 usernodes access to the mainframe. Each Gateway with a Supercomm board supports eight concurrent host sessions.

IDEAcomm 3770/SNA and IDEAcomm 3780/BSC allow the PC to duplicate the functions of remote job entry terminals through a synchronous modem. Ideal for applications requiring batch transfers.

IDEA Minicomm is a half sized remote communications adapter. An RS-232 interface allows for remote PC to mainframe connection via a synchronous modem.

IDEA Supercomm is an adapter board with 80188 processor and 512KB on-board memory to offload processing from the PC. The intelligence offers flexibility to be used with custom written software. An RS-232 interface allows for remote PC to mainframe connection via a synchronous modem.

IDEAcomm 3270/AFT provides PC users with concurrent access to IBM mainframes, DEC VAX, and other asynchronous hosts, with nine terminal or printer sessions (15 if connected through IDEA Concert), including notepads, all points-addressable graphics, and bi-directional file transfer.

Terminals

IDEA 276 features 3496 emulation with green or amber display, alternate station addressing, record/playback, type-ahead keyboard buffering, and a hardware lock. The 102/3 or 122 key keyboard supports 16 languages.

IDEA 277 includes all of the above, with choice of green, amber, or black/white and emulation of models 3196, 3197, 3180, 5256, 5219, and full graphics support in 5224/5225 emulation; 80 or 132 column display, and support of a large selection of the most popular serial and parallel PC printers.

IDEA 277P adds 4 sessions, which may include 2 printer sessions.

IDEA 277C offers all of the features of IDEA 177 Plus with selection of 7 color or 2 color display.

Printers

IDEA 224 Series midrange system printers support IBM's IPDS and AFP, including bar code support, with automatic switching between a midrange host and a PC, and exceptional materials handling.

Appendix F: Customer Support Information

Telephone Support

If you have any problems using our product, please follow these steps before contacting our technical support staff.

1. Make sure your computer system meets all the hardware requirements listed in the manual.
2. Referring to your manual, carefully check all the cables to make sure they are connected correctly.
3. Complete the following checklist:
 - Software name _____
Serial number _____
Version number _____
 - Computer brand name _____
Model number _____
RAM (memory) _____ bytes
Operating system (name and version, e.g.,
P.C.-DOS version 2.0)

 - Manufacturer and model number of:
Video adapter board _____
Printer/Plotter _____
Expansion RAM board _____
Hard disk system _____
Modem _____
Other _____

-
4. Be sure you can answer the following questions:
 - Did the program ever work properly? If so, have you changed anything in your operating environment?
 - Did any error messages appear? If so, what were they?
 - What is the exact sequence of steps required to produce the problem?
 5. With your computer on and the software loaded, call the number where you bought the product, or IDEA Technical Support at the number below.

Repair Policy

If your product is still under the original one year limited warranty, IDEA will repair or replace it at no charge. If the product is out of the warranty period, IDEA will repair it and charge you on a time and materials basis.

If you are having problems with your IDEA product, take the following steps:

1. Go through the checklist above.
2. Call the IDEA Technical Support Department at (800) 343-0056. In Massachusetts, call (508)-663-6878. (Be sure that you have the serial numbers from your software diskette and from your IDEA hardware.) If the Technical Support representative determines that your product requires factory service, you will be issued a Return Materials Authorization (RMA) number. IDEA will not accept returned products without an RMA number.
3. Box the product in the original shipping container or other secure package. Write your

RMA number clearly on the outside of the box.
For all warranty repairs, enclose a copy of the original purchase receipt as proof of date of purchase.

4. Ship by the most economical means to:

IDEA, Inc.
RMA # _____
29 Dunham Road
Billerica, MA 01821

Once your product has been repaired, IDEA will return it to you by UPS or the most economical carrier at IDEA's expense.

Warranty Card

Please complete and promptly return the enclosed warranty card. The warranty card should be filed by the party who installs the IDEA product.

Limited Warranty

For IDEA's Limited Warranty, see page iii of this manual.

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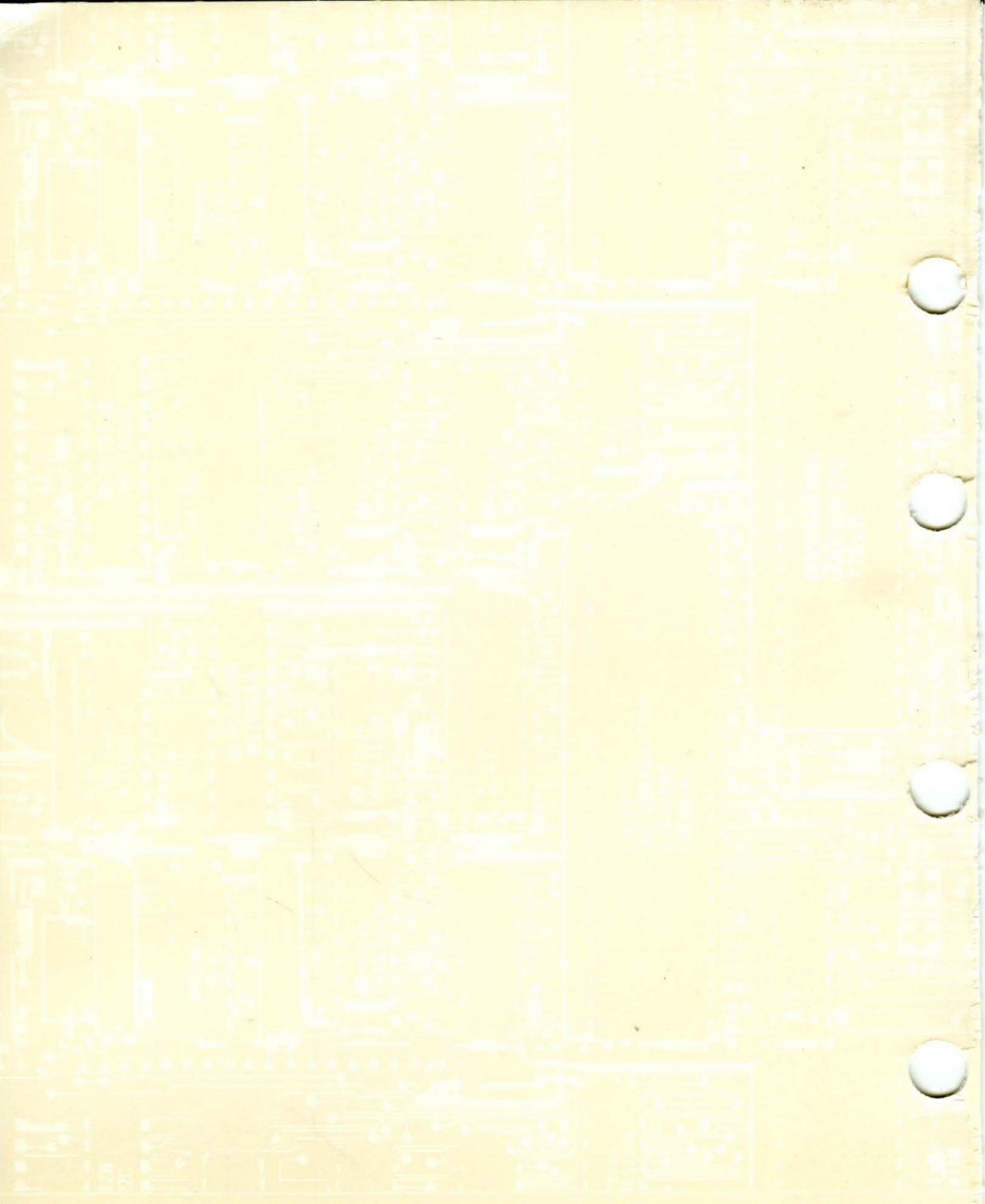
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