I-O 8251 Emulator Card

for
PC to IBM System/36, /38 and AS/400
Communications

Quick Setup & User's Guide

Version 4.3

U.S.A.: I-O Corporation
2256 South 3600 West
Salt Lake City, Utah 84119
(801) 973-6767 • Fax: (801) 974-5683

U.K.: I-O Corporation (UK)
9 Centurion Court, Brick Close
Kiln Farm, Milton Keynes
England MK11 3JB
44(0)1908 567722 • Fax: 44(0)1908 565599

International: I-O Corporation
2256 South 3600 West
Salt Lake City, Utah 84119
(801) 973-6767 • Fax: (801) 974-5683

Customer Support: I-O Corporation
2256 South 3600 West
Salt Lake City, Utah 84119
(801) 972-1446   Fax: (801) 973-8042

Internet: http://www.iocorp.com

PREFACE

This I-O 8251 User's Guide includes instructions for the I-O 8251EH and I-O 8251ME Emulator Cards. Please note which model is being installed.

The I-O 8251 Emulator Card and emulation software allows an IBM or compatible personal computers (PCs) to be connected to an IBM System/36, /38, or AS/400. During an active session with the host, the I-O 8251 Emulator Card allows a PC to act as a display station, and the attached PC printer acts as a system printer. It's like having several display stations all on one desk top.

This manual will guide you through a step-by-step installation procedure. Once installed, the I-O 8251 Emulator Card works without further operator intervention. This manual is divided into the following sections:

1. **INTRODUCTION** - Provides an overview of the I-O 8251 Emulator Cards.

2. **HARDWARE INSTALLATION** - Explains the simple installation process for the hardware for the I-O 8251 Emulator Cards.

3. **SOFTWARE INSTALLATION** - Explains the software installation and setup options required.

4. **CONFIGURATION** - Explains how to configure the software in minutes.

5. **OPERATION** - Provides a detailed overview of starting and ending emulation, hot key sequences, printer control screens, auto sharing printing, and file transfer.

6. **ADVANCED FEATURES** - Provides a detailed overview of features supported by the seven session software, which includes Record/Playback, 3812 or 5219 printer emulation, and the I-O Command Language.

7. **PROBLEM RESOLUTION** - Provides a detailed troubleshooting guide.

Caution! The I-O 8251 Emulator Card is static sensitive.

Take precautions as you would with any static-sensitive device. Some of these precautions include:

Be aware that some work surroundings, such as carpet, floor mats, dry air from winter heating, etc., can cause static buildup. To prevent a static discharge, touch a grounded surface (such as an exposed twinax connector on a cable attached to the host) before handling the card. Do not touch components on the card. Handle the card by the edges only.

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

I-O 8251 Emulator Card

for
PC to IBM System/36, /38 and AS/400 Communications

Quick Setup Guide

The I-O 8251 Emulation Cards have been designed for simple installation and ease of use. The installation requires very few steps, however, if this Quick Setup Guide does not contain enough information, please refer to the User's Guide for detailed installation and configuration instructions.

Note: The I-O Emulator Card is a static-sensitive device. Keep the card in the protective bag until you are ready to install it.

The package should contain the following items:

- I-O 8251 Emulator Card
- I-O 8251 Quick Setup and User's Guide
- Software diskette
- Auto-terminate V-connector or RJ4509 Balun
- Screwdriver

Note: The I-O Emulator Card has been sent with a 3 1/2" diskette. If your system requires a 5 1/4" diskette, please contact Customer Support at (801) 972-1446.

QUICK SETUP

Installing the I-O 8251 Emulator Card

The following is an outline of the installation steps for all local I-O 8251 Emulator Cards. Complete only those steps that are applicable:

1. For Micro Channel users: Boot from the IBM Reference Diskette and select the option to merge an option diskette. Use the I-O diskette as the option disk.

2. All users: Power off the PC and all attached peripherals.

3. All users: Remove the PC cover, and find an empty expansion slot.

4. Full size card users only: Set the DIP switches (refer to Appendix G in the User's Guide).

5. All users: Carefully insert the I-O 8251 Emulator Card into the expansion slot.

6. All users: Connect the power cord to the PC and monitor, then turn on the PC.

7. Micro Channel users: Boot with the IBM Reference Diskette and answer "Yes" to Auto Configuration.

8. All users: Replace the PC cover.

9.   All users: Connect the twinax cable to the I-O 8251 Emulator Card.

10. All users: Verify the cable addresses.

11. All users: Install the I-O 8251 software (see page QS-3).

12. All users: Configure the I-O 8251 Emulator Card software (refer to Chapter 4 in the User's Guide).

13. All users: Begin emulation procedure (see page QS-4).

Installing the Software

An installation diskette has been included with the hardware. The diskette supports seven sessions, a 132-column display, 3812 or 5219 printer emulation, and also supports four sessions, an 80-column display, and limited printer emulations.

Note: If the hard drive is not C: and/or the floppy drive is not A: replace the correct values for C: and/or A:.

1. Insert the I-O 8251 software diskette into drive A: then type the following: **a: <Enter> install <Enter>**. Follow the instructions shown on the screen.

2. After all files are copied, remove the diskette and store in a safe place.

3. After the software installation is complete, the Configuration Program must be run. Go to the drive and directory where the software is to be installed (CD\8251). Execute **IOConfig.exe**.

4. The I-O 8251 software is pre-configured for a typical setup. Select "**Modify**". Move the cursor through the options on the Configuration Menu and make the desired selections. Refer to the Chapter 4, Configuration, in the I-O 8251 User's Guide.

5. After the configuration option(s) have been set, press **<Esc>**. The following question appears: Do you want to save this configuration? (Y/N). Type "**Y**" to save the changes, then select **<Exit>** to end the program. If using Microsoft Windows, see Chapter 3, "Installing the Emulation for Windows" in the I-O 8251 User's Guide.

QUICK SETUP

Starting Emulation

To begin emulation, perform the following steps:

1. On the drive where the software is installed, type **cd\8251** and press **<Enter>**.

2. Type **io8251** and press <**Enter**>.

The sign-on screen will appear if 3X Emulation was chosen for Emulator Startup in the configuration. If the DOS startup was chosen for Emulator Startup, the DOS screen will appear. Hot key to the host session. The default hot key sequence is **<Alt><Esc>**.

Ending Emulation

From the sign on screen, press **<Ctrl><Alt><Del>** to end emulation. If using Windows or OS/2, refer to the appropriate section in the User's Guide.

1 INTRODUCTION

The I-O 8251 allows an IBM or compatible personal computer (PC) to be connected to an IBM System /36, /38, or AS/400. The card is installed into a PC, and enables the PC and PC printer to emulate (act like) host devices while allowing access to PC applications.

The I-O 8251 software can be configured for either low memory requirements (a basic, low feature option) or for standard memory usage. The table below describes the differences in the software:

	Low	**STD**
Sessions supported	4	7
Memory required	38K	64K
Display emulation supported	5251-11 5291 5292/31/79	5251-11 5291 5292/31/79 3180 3196 3197D 3197C
Printer emulation supported	5256 5224 5225 4214	5256 5224 5225 4214 5219 3812
132 column capability	No	Yes
Auto page orientation	No	Yes
Record/playback macros	No	Yes

A diskette containing the software is included with each card. The card can be customized during the software configuration.

INTRODUCTION

PC Requirements

The following systems are required to use the I-O Emulator Card:

- IBM PC, PC/XT, PC/AT, or compatible, IBM PS/2 model 25, 30, or 80386, or a 386 or 486 personal computer (I-O 8251EH only)
- IBM PS/2 Model 50 or higher (Micro Channel bus) (I-O 8251ME only)
- Floppy drive
- DOS version 3.0 or higher
- 512K RAM memory
- 16K (low memory option) or 32K (standard option) free upper memory block

Unpacking

When the card is received, check the package for water or shipping damage, and contact the carrier if any damage is evident. The shipping package should contain the following:

- I-O 8251 Emulator Card
- I-O 8251 software diskette
- I-O 8251 Quick Setup and User's Guide
- Auto-terminate V-connector
- Screwdriver

Note: The I-O 8251 Emulator Card has been sent with a 3 1/2" diskette. If your system requires a 5 1/4" diskette, please contact I-O Customer Service at (801) 972-1446.

Keep the original packaging in case the card must be reshipped.

2 HARDWARE INSTALLATION

Caution!   The I-O 8251 Emulator Card is static sensitive.

Take precautions as you would with any static-sensitive device. Some of these precautions include:

Be aware that some work surroundings, such as carpet, floor mats, dry air from winter heating, etc., can cause static buildup. To prevent a static discharge, touch a grounded surface (such as an exposed twinax connector on a cable attached to the host) before handling the card. Do not touch components on the card. Handle the card by the edges only.

Installing the I-O 8251 Emulator Card

Follow these instructions to install the I-O 8251 Emulator Card into a PC. Complete only those steps that are applicable:

1. Micro Channel PC (PS/2 50 and above) users only:

    Note: Always use the same copy of the IBM Reference Diskette or drivers for other cards may be lost.

    a. Power off the PC and insert the backup copy of the IBM Reference Diskette. Power on the PC.

    b. When the IBM Main Menu appears, select "Merge an Option Diskette."

    c. Follow the instructions on the screen using the I-O 8251 diskette as the option diskette.

    d. Exit the program and power off the PC.

    e. Continue the installation using Step 2 on the following page.

2. All users: Power off the PC and other devices attached to the PC.

3. All users: Mark all of the cables connected to the back of the PC.

HARDWARE INSTALLATION

4. All users: Follow the PC user's guide for removing the PC cover. Set the cover aside, and save the screws for reassembly.

5. All users: Locate an empty expansion slot in the PC. Remove the expansion slot cover. Save the screw to hold the card in place.

6. All users: Discharge static electricity from your body by touching a grounded surface, then remove the card from the anti-static bag.

7. Full size card users only: Set the DIP switches (refer to Appendix G).

8. All users: Hold the card by its edges (do not touch the components or circuitry), and insert the card into the expansion slot.

9. All users: Press the card into the PC motherboard socket connector. See Figure 2-1.

10. All users: Align the slot on the bracket with the expansion slot cover hole. To align, gently lift or press down on the end opposite the bracket and connector until properly aligned. If the slot is not properly aligned, the card will not seat correctly in the bus of the PC and the card will not function properly.
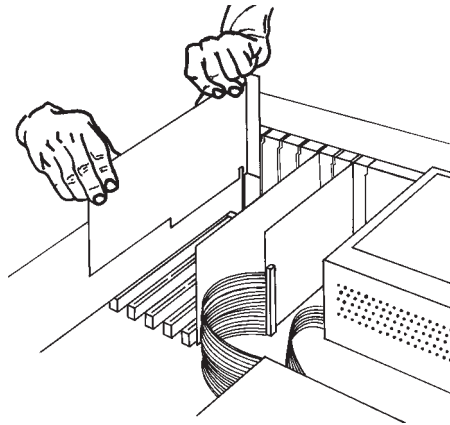
Figure 2-1

11. All users: Insert and tighten the screw. Replace and fasten the PC cover. Replace the monitor.

12. Micro Channel users: Boot the PC from the IBM Reference Diskette. If a 165 error appears, repeat Step 1. If asked to auto configure, answer Yes. Exit the program and reboot.

13. All users: Reattach the cables.

Connecting the I-O 8251 Cards to the Host

Take the following steps to connect the I-O 8251 to the host system.

1. Attach the host twinax cable to either one of the twinax connectors. The V-connector automatically terminates when attaching one cable and automatically cables through when attaching two cables.

2. Locate the 9-pin connector on the I-O 8251 at the back panel of the PC.

3. Attach the V-connector and tighten the two mounting screws to secure the connection.

4. Power on the PC and other devices.
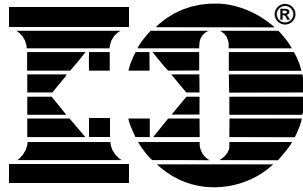
"Products That Work"

This page left intentionally blank.

3 SOFTWARE INSTALLATION

This chapter will give instructions for installing the I-O 8251 software, and setting the I-O 8251 to be used with DOS, Windows, Memory Managers, PC Support, Client Access/400, Personal Communications A/400, and OS/2. Complete only the steps needed.

The following key indicates the type of transactions which will be used to install these applications:

Bold	Indicates a command to type in.
Outline	Indicates a button or icon selection.
<u>Underline</u>	Indicates an option selection.

Installing the I-O 8251 Software

Before beginning the software installation, make a backup copy of the I-O 8251 software, using the following steps.

Note: If the hard drive is not C: and/or the floppy drive is not A: replace the correct values for C: and/or A:.

1.   Type **Diskcopy A: A:** and follow the prompt.

2.   Store the original disk in a safe place.

Copy the I-O 8251 software to the hard drive, following the instructions below.

1.   Insert the I-O 8251 software diskette into drive A.

2.   Execute the install procedure by typing: **A:install,** then press **<Enter>**. Follow the instructions on the screen.

3.   When the installation is finished, remove the software diskette and store it in a safe place.

4.   Complete the configuration as outlined in Chapter 4.

SOFTWARE INSTALLATION

Using Microsoft Windows 3.x

After installing the I-O software, follow these simple steps to install the I-O 8251 into Windows:

1. Start Windows by typing **WIN.EXE,** then press **<ENTER>**

2. Go to the folder where the I-O icon is to be located.

3. From the File menu, select New.

4. Select Program Item.

5. For the description, type in **IO8251**

6. For command line, type **IO8251.PIF**

7. For working directory, type **C:\8251**

8. Leave shortcut key blank.

9. Select Change Icon.

10. For the icon name, type **C:\8251\IO8251.ICO**

11. To save and exit, click on OK twice.

12. From the File menu, select New.

13. Select Program Item.

14. For the description, type in **IOConfig**

15. For command line, type **IOConfig.PIF**

16. For working directory, type **C:\8251**

17. Leave shortcut key blank.

18. To save and exit, click on OK twice.

19. Double click on the IOConfig icon to start the configuration.

20. Configure the software using the instructions in Chapter 4, Configuration. Change the Hot Key code under "Keyboard" to ensure the proper Windows Hot Key functions will work.

21. Double click on the IO8251 icon to start emulation.

Hints for Windows 3.X

If you want to exit emulation, follow these steps:

1. Sign off all sessions.

2. Use the hot key **<Alt><Shift>** to go to the emulator card's DOS system.

3. At the Windows message screen, press **<Ctrl><C>** to end emulation.

To restart emulation, follow these steps:

1. Double click on the IO8251 icon.

2. When the message appears, select **<C>** (continue).

3. If emulation does not start, double click on the IO8251 icon for a second time. This will start emulation.

If you want to copy from emulation to a document, follow these steps:

1. Put the emulation screen in a window **<Alt><Enter>**.

2. Bring up the System Menu by clicking on the system menu button "-" located in the upper left hand corner of the screen.

3. Select <u>Edit</u>.

4. Select <u>Mark</u>.

5. Using the mouse, mark the text to be copied.

SOFTWARE INSTALLATION

6. Open the clipboard in Windows.

7. Open <u>Display</u> and select <u>OEM text</u>.

8. Go to the document where the paste will take place.

9. Select <u>Paste</u>.

To copy from a document to emulation, follow these steps:

1. Cut the data using the normal sequence for the program.

2. Activate the emulation screen and put the screen in a window **<Alt><Enter>**.

3. Put the cursor where the paste will take place.

4. Bring up the System Menu by clicking on the system menu button "-" located in the upper left hand corner of the screen.

5. Select <u>Edit</u>.

6. Select <u>Paste</u>.

Windows Hot Key Sequences

The following sequences can be used to jump between applications while in Windows.

Starting at the current active emulation, press and hold **<Alt>** then toggle the **<Tab>** to roll through the active applications. This sequence advances to each of the current active applications.

```
           <Alt><Tab>                    <Alt><Tab>

┌─────────────┐           ┌─────────────┐           ┌─────────────┐
│             │  ◄- - ►   │             │  ◄- - ►   │   Program   │
│  Emulation  │           │ Application │           │   Manager   │
└─────────────┘           └─────────────┘           └─────────────┘
```

Note: For Windows, the hot key sequence should be changed to <Alt><Shift>.

Using **<Alt>** and **<Esc> allows the user to roll through active applications, <Enter>** must be pressed to activate the application. To change sessions while in emulation; press **<Alt><Shift>** (or the customized hot key) or **<Alt> <1>** for session 1, **<Alt> <2>** for session 2, etc.
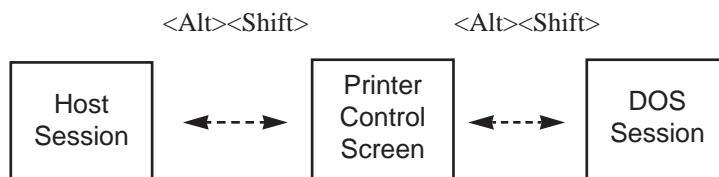
Using Memory Management Software

When using a 386 or 486 computer, "extended" or "expanded" memory management software (such as Windows or DOS EMM386), may need to be configured to exclude the memory area occupied by the I-O 8251. The CONFIG SYS file may need to be modified. Using any text editor, locate the command DEVICE-C:\DOS\EMM386.EXE. At the end of this line, add the option X= xxxx-yyyy to exclude the memory used by the I-O 8251 card.

For example, if the card is configured at D000, the command would be **X=D000-D7FF** if using STD memory software. If using LOW memory software, the command is **X=D000-D3FF**. (Instructions can be found in the memory manager software manual.)
For example: Device = EMM386.EXE X = D000-D7FF

If the 386 or 486 computer uses memory cache, disable caching in the memory are occupied by the I-O 8251. (This is typically done through the BIOS setup. Instructions can be found in the computer user's guide.) For detailed instructions, refer to Chapter 7, Problem Resolution in the I-O 8251 User's Guide.

If the 286, 386, or 486 computer uses an old 16-bit bus VGA adapter, it may interfere with the I-O 8251. To avoid this, do one of the following:

- Have address E000 available to the I-O 8251 Emulator Card
- Configure the VGA adapter for 8-bit bus operation

SOFTWARE INSTALLATION

Client Access/400 for Windows

To use the I-O 8251 with Client Access/400 for Windows, first install Client Access/400, then complete the following steps:

1. Install the I-O 8251 software diskette into drive A.

2. Change to the A: drive by typing **A: <Enter>**.

3. Change to the CA directory by typing: **CD \CA**.

4. Execute **Install.exe**.

5. Follow the instructions shown on the screen.

6. After the installation is complete, go to the C: drive by typing **C: <Enter>**.

7. Change to the TWXDRV directory by typing: **CD \TWXDRV**

8. Execute **FIXIBMCA.BAT**.

9. Restart Windows.

Personal Communications AS/400

To use the I-O 8251 with Personal Communications AS/400, first install Personal Communications AS/400, then complete the following steps:

1. Install the I-O 8251 software diskette into drive A.

2. Change to the A: drive by typing **A: <Enter>**.

3. Change to the CA directory by typing: CD \CA.

4. Execute **Install.exe**.

5. Follow the instructions shown on the screen.

6. After the installation is complete, go to the C: drive by typing **C: <Enter>**.

7. Change to the TWXDRV directory by typing: **CD \TWXDRV**

8. Execute **FIXIBMPC.BAT**.

9. Restart Windows.

PC Support/400

To install PC Support/400, the IBM PC Support AS/400 diskettes are required. PC Support/400 cannot be run in conjunction with standard I-O emulation. Use either I-O emulation or PC Support.

To install PC Support/400, take the following steps:

1. Run **INSTALL.EXE** on the IBM PC Support disk.

2. Select ENHANCED 5250 EMULATION for the installation, and follow the installation instructions.

3. Go to the I-O directory. **C:\8251**

4. Type **PCSINST.EXE<Enter>**

5. Verify that C:\PCS=STARTPCS.BAT is the correct file.

6. Change the directory to PCS by typing: **CD \PCS**

7. Start PC Support by typing: **STARTPCS.BAT**

    Note: The PCSINST.EXE program does not always work. If you have problems, continue with Steps 8 through15. If the installation is successful, PC Support is loaded.

8. Go to the I-O directory. **C:\8251**

SOFTWARE INSTALLATION

9. Copy the I-O files to the PCS directory by typing:
    COPY C:\8251\6809*.HEX
    COPY C:\8251\CONNAH.EXE

10. Use Edit, EDLIN or another editor to edit the STARTPCS.BAT file.

11. Find the E5250AH or WSEAH command line. The position of this line will vary.

12. Replace E5250AH or WSEAH with **CONNAH.EXE**.

13. Save and exit the editor. This completes the installation.

14. Change the directory to PCS by typing: **CD \PCS**

15. Start PC Support by typing: **STARTPCS.BAT**

Notes: While using PC Support AS/400, use the original <Alt><Esc> hot key sequence. If the hot key sequences have been customized in IOCONFIG.EXE, they will not work while using PC Support AS/400.

The host has to be configured for a 5150 Model 1 for ISA PC's and Model 2 for Micro Channel PCs.

PC Support/38

Follow the installation instructions in the IBM PC Support/38 technical reference manual (IBM enhanced emulation). When starting emulation, do not specify a virtual source drive. For all references to the virtual source drive, use the virtual disk specified in the I-O configuration program.

To install PC Support/38, take the following steps:

1. Configure the I-O 8251 Emulator Card (see Chapter 4). Set the virtual disk drive to A: and set emulator start up to DOS.

2. Create a directory called "PCS38" by typing **MKDIR PCS38**

3. Start emulation by typing **IO8251** from the 8251 directory.

4. Hot key to the S/38 sign on screen and sign on.

5. Execute option **<5>** (execute command).

6. On the command line, type: **ADDLIBLE QIWS**

7. Execute option **<3>** (execute command).

8. Call **QIWDOWNL**

9. Go to the copy screen, then hot key to DOS.

10. Change the drive to A: and type: **COPYLINK C:\PCS38**. The program will begin to copy.

11. When complete, hot key to emulation.

12. Execute **<CMD1>** (end) twice.

13. Sign off the PC.

14. Reboot the PC.

15. Start emulation.

16. From the PC38 directory, execute Link 38.

PC Support/36

During the installation of the IBM PC Support/36 software on the PC, when asked for the type of emulation program, specify "Other" and enter the I-O 8251 emulation program name: **IO8251.EXE**

SOFTWARE INSTALLATION

OS/2

The I-O 8251 is compatible with OS/2 Version 2.0 and later. To install the I-O 8251, follow the steps below.

1. Insert the I-O diskette. Double click on Diskette Drive Object for the drive being used. If the diskette drive object is not on the desktop, do the following:

    *   Step 1 - Double click on OS/2 System
    *   Step 2 - Double click on Drives
    *   Step 3 - Double click on your Diskette Drive Object

2. Double click on the INSTALL.EXE program. Configure the I-O 8251 by following the instructions in Chapter 4.

3. In the configuration, go to the Hot Key selection and select **Change Hot Key**.

4. Change the hot key to the left hand shift by pressing the left hand **<Shift>** key followed by **<Enter>**.

5. Double click on the IO8251 icon.

Hints for OS/2

To exit emulation, sign off all sessions. Use the hot key **<Alt><Shift>** to go to DOS. This ends the OS/2 emulation screen and closes the window.

To restart emulation, double click on the IO8251 icon. When the message appears, select **<C>** (continue). If this does not start emulation, double click on the IO8251 icon a second time. This should restart emulation.

Note: The I-O software does not work with the OS/2 Communications Manager.

Client Access/400 for Windows 3.X

To use the I-O 8251 with Client Access/400 for Windows, first install Client Access/400, then complete the following.

1. Install the I-O 8251 card and software.

2. Copy the following files from the directory you installed the I-O software in (most likely it will be 8251) to the **CAWIN** directory:
   6809*.HEX
   CONNAH.EXE

3. From the I-O Client Access/400 Drivers diskette, execute **FIXIBMPC.BAT**.

4. Shutdown the PC and reboot. Client Access is ready to run.

Client Access for Windows 95/98

Use the following steps to setup the I-O 8251 and software to run within Windows 95/98:

1. Install the I-O 8251 and software and verify that you can connect to the host.

2. Edit the AUTOEXEC.BAT file so that the emulation adapter should be loaded first followed by the NStwinax TSR by adding the following lines.

   CD\IOWIN
   CONNAH A=D0
   CD\PROGRA~1\IBM\CLIENT~1
   NSTWINAX
   PAUSE

   The Pause command is optional and is added after NSTWINAX if you want the PC pause to verify these files loaded properly.

   The first line indicates the directory in which the adapter handler is located, The second line is the name of the adapter.

SOFTWARE INSTALLATION

3.   Load Client Access

   Note: Client Access sometimes displays a message asking if your
   emulator card requires a special adapter handler. Answer **NO**. The I-O
   8251 is register level compatible.

   Also, during the AS/400 Connection Wizard following the Configuration
   Summary, you will see a *Link Configuration Warning CWBNS1001-
   Legacy twinax drivers detected in autoexec.bat* message. **DO NOT** click
   OK or CANCEL. Use the Windows Close Box X in the upper right
   corner to close this window, then proceed as normal with the remainder
   of the installation.

Creating a shortcut in Windows 95/98

After you have installed the I-O 8251 software, perform the following steps
to create an icon:

1.   Right click on desktop and select New then select Shortcut.
2.   Browse the 8251 directory and highlight 'IO8251.exe'.
3.   Click Open, Next and Finish.
4.   Right click the shortcut that was just created and select Properties.
5.   Click on the Program tab, and select Change Icon.
6.   Select Browse go to 8251 directory, select IO8251.ICO.
7.   Click Open, OK, OK.

4 CONFIGURATION

Before the I-O 8251 can communicate with the host system, both the host system and the I-O 8251 software must be configured.

Configuring the Host

Configure the host for the display and printer devices at the appropriate cable addresses. The system operator can assist with host configuration.

Notes: Do not configure the host for an enhanced (101/102 key) keyboard even if an enhanced (101/102) keyboard is attached to the PC. Configure the host as a standard (5250) keyboard.

If you are using PC Support/400 or Client Access/400, the host must be configured as a 5150 Model 1 for ISA or Model 2 for Micro Channel PCs.

Configuring the I-O 8251

The I-O 8251 configuration information is contained in a disk file. A standard default file is included with the software. Modify the standard default file, or create a new one. Only create a new configuration if more than one configuration is needed.

The following keys are used throughout the configuration:

Key	Function
<Enter>	Selects and saves your choice
<Esc> (Escape)	Returns to the previous screen
← ↑ → ↓	Moves from one option to another
Space Bar	Erases the choice shown at the cursor location. In some cases, it also toggles through the selections for that option.

CONFIGURATION

After the software installation is complete, the Main Menu for configuring the I-O 8251 appears as shown in Figure 4-1.

Note: To manually start the configuration, type **IOConfig.exe** or double click on the **IOConfig** icon.

```
Modify / Create / Delete / Exit                    File Name =
━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━

Modify an existing configuration file:

                    I-O 8251 Configuration Utility
                              Version XXX

                        Copyright © 1994 I-O Corp.


When finished select Exit, then type IO8251 <filename> to
enter emulation.
```

```
Menu Command Options:

        Change Option ↵ Select Options   <ESC>   Previous Screen
```

Figure 4-1

Use the cursor arrow keys to move the highlighted block on the top of the Main Menu to Modify, Create, Delete or Exit. Press **<Enter>** to select the choice.

Modify or Create a Configuration

To change an existing configuration, select **Modify**. The default configuration file is named **IO8251**. Rather than create a new configuration, modify the default configuration file to reduce the amount of disk storage.

To create a new configuration file, select **Create**. This creates and stores a new file. Type the new file name, then press **<Enter>**.

Delete a Configuration

To delete a configuration file, select **Delete**. A list of the files (up to eight) is displayed. Move the cursor to the file to be deleted and press **<Enter>**. The following prompt appears: "Are you sure you want to delete this file (y/n)?" Type "**Y**" and press **<Enter>**, to erase the file Type "**N**" and press **<Enter>**, to return to the original screen.

Exit the Configuration Program

After selecting the configuration options, press **<Esc>** until the following prompt appears: "Do you want to save this configuration? (y/n)." Type "**Y**" to save the new configuration, or type "**N**" to ignore the changes and press **<Enter>**. Then select **Exit** to end the program, and press **<Enter>** to return to the DOS prompt.

Configuring the Software

When Modify or Create is selected, the Configuration Menu appears (See Figure 4-2). This menu shows the categories available for modification.

```
 Modify / Create / Delete / Exit      File Nambe = IO8251


     ┌─────────────────────────┬─────────────────────────┐
     │  Basic Configuration    │   Advanced Functions    │
     ├─────────────────────────┼─────────────────────────┤
     │     Cable Addresses     │       Display           │
     │                         │                         │
     │     Basic Setup         │       Keyboard          │
     │                         │                         │
     │     Language            │       Printer           │
     ├─────────────────────────┴─────────────────────────┤
     │   Define Devices and Addresses on cable           │
     └───────────────────────────────────────────────────┘

```

```
Menu Command Options:
    Change Option ↵  Select Options    <ESC>  Previous Screen
```

Figure 4-2

CONFIGURATION

- Basic Configuration: The items in the left column are necessary for the basic configuration of the PC.

- Advanced Functions: The items in the right column are for more advanced configuration of the PC with the host. Consult the system operator for assistance.

Move the cursor to an option on the Configuration Menu and press **<Enter>**. This displays a second screen of options under that choice. Make selections from the items on the Configuration Menu until finished. The selections are described on the following pages.

When the selections from the Configuration Menu have been made, press **<Esc>** to return to the Main Menu. If finished, press **<Esc>** again. A prompt appears to save the configuration. Choose **Yes** to save the configuration being created or modified. If **No** is chosen, the configuration is not saved. The selections made will not take effect until the configuration is saved and emulation is restarted.

Basic Configuration

The Basic Configuration options are used to set the following:

- Cable addresses
- Basic setup options for the PC
- Language type (to match the host)

Cable Addresses

Move the cursor to Cable Addresses and press **<Enter>**. The following screen appears:

```
Modify / Create / Delete / Exit          File Name  5251-11
                                                     5291
  ┌─────────┬─────────┬──────────┬─────────┬─────────┐ 5292/3179
  │ Logical │  Host   │  Device  │ Printer │   PC    │ 3180
  │ Sess #  │ Address │ Emulated │  Type   │  Port   │ 3196
  ├─────────┼─────────┼──────────┼─────────┼─────────┤ 3197-C
  │    1    │    0    │ 5251-11  │  n.a.   │  n.a.   │ 3197-D
  ├─────────┼─────────┼──────────┼─────────┼─────────┤ 5256 Text
  │    2    │         │          │  n.a.   │  n.a.   │ 5224 Text
  ├─────────┼─────────┼──────────┼─────────┼─────────┤ 5225 Text
  │    3    │         │          │  n.a.   │  n.a.   │ 4214 Text
  ├─────────┼─────────┼──────────┼─────────┼─────────┤ 5224 Grph
  │    4    │         │          │  n.a.   │  n.a.   │ 5225 Grph
  ├─────────┼─────────┼──────────┼─────────┼─────────┤ 4214 Grph
  │    5    │         │          │  n.a.   │  n.a.   │ 5219
  ├─────────┼─────────┼──────────┼─────────┼─────────┤ 3812
  │    6    │         │          │  n.a.   │  n.a.   │
  ├─────────┼─────────┼──────────┼─────────┼─────────┤
  │    7    │         │          │  n.a.   │  n.a.   │
  └─────────┴─────────┴──────────┴─────────┴─────────┘

Menu Command Options:

Change Options ↵ Select Options   <ESC> Previous
```

Figure 4-3

Logical Session # -- Each device is referred to as a Logical Unit (LU) or "session." A maximum of seven devices can be assigned with the standard memory option, or four devices with the low memory option.

Host Address -- The host address is the twinax cable address used to identify communication to and from an LU. Use the space bar to erase an address selection. An address can be used only once.

Device Emulated -- The I-O 8251 can emulate similar IBM displays or printers. Move the cursor to the Device Emulated column, and a window appears on the screen with the display and printer choices. The choices include: 5251 Model 11, 5291, 5292/3179, 3180*, 3196*, 3197D*, 3197C* displays and 5256 text, 5224 text, 5225 text, 4214 text, 5224 graphic, 5225 graphic, 4214 graphic, 5219*, and 3812* printers.

Notes: An asterisk (*) indicates models available only with STD (7 session) software.

Select a graphics printer if possible. When text is chosen, I-O uses defaults for many printer functions.

Use the cursor up and cursor down keys to highlight the emulation choice and press **<Enter>** to select. Make sure the emulation choice for each cable address matches the device configured on the host by the system operator.

CONFIGURATION

Printer Type -- If the printer is not listed, it is possible to create a printer definition by selecting **Other**, typing a new name, and then defining the printer as discussed on page 4-18.

PC Port -- Select the PC port to which the printer is physically attached. Choose an "LPT" port for parallel printers or a "COM" port for serial printers. Move the cursor to the PC Port column, and a window appears with the following choices: LPT 1, LPT 2, LPT 3, COM 1, or COM 2. If a "COM" port is selected for serial printers, a second window will appear on the screen to define communications protocol of baud rate, data bits, stop bits, and parity.

Basic Setup

Basic Setup options configure a PC for the host. Move the cursor to Basic Setup and press **<Enter>**. The screen in Figure 4-4 appears.

```
Setup Options


Monitor Type       Monochrome    Color  Colro (IBM)
Emulator Startup   3x Emulation  DOS
PC Keyboard        AT      PC/AT Enahnced
Emulated           5250    PC
Keyboard
Key Click          OFF     ON
File Transfer      No      Yes
Virtual Disk       A       B        C        D
Direct Hot Key     On      OFF
Cable Type         2
Memory Address     C000    C800   D000   E000
        Select type of monitor connected to PC
```

Figure 4-4

Monitor Type -- Select the monitor type connected to the PC. Options include Monochrome, Color, or Color (IBM). To make a selection, move the highlighted block to the choice. Only select color IBM if the monitor is a CGA or snow appears on the screen.

Emulator Startup -- After starting emulation (communication with the host), either a DOS screen or a host screen will appear. To start

emulation with a DOS screen, select **DOS**, then "hot key" to the host session. To start emulation with a host screen, select **3X Emulation**. When Microsoft Windows or OS/2 is being used, select **3X Emulation**.

PC Keyboard -- Select according to the keyboard type installed on the PC. Move the cursor to make the selection and press **<Enter>**. If the choice is unclear, refer to the templates in Appendix F.

Emulated Keyboard -- Select the keyboard type to emulate.

If you are an experienced host system user, you may be more comfortable using the 5250 layout. This selection uses the same general layout as a keyboard used on the host. If the PC layout is most familiar, select PC. (see Appendix F for the keyboard templates). The normal PC keyboard layout is restored when using DOS.

Note: The host keyboard must be 5250 - not enhanced.

Key Click -- While in emulation with the host, the click can be turned on or off. If it is **ON**, each time a key is struck a clicking sound will be heard.

File Transfer -- Select **Yes** to use any transfer utilities. This enables the IBM API function. If yes is chosen, the first logical session must be configured as a display device. Selecting **No** disables the API.

Note: If the first logical session is not configured, or if it is not configured as a display, the configuration program will not allow file transfer.

Virtual Disk -- This option defines which disk drive is used during file transfer when the system uses PC Support/38. Leave this at A:

Direct Hot Key -- The direct hot key jumps from one session directly to another session rather than jumping sequentially through the sessions. The hot key can be turned **On** or **Off**. Disable this only if there is a conflict with another PC program when pressing **<Alt><#>**.

Cable Type -- Choose the type of cable attached to the host. If using twinax cable, select **2**. For balun and twisted pair cabling, select **3**.

CONFIGURATION

Memory Address -- Each card installed into a PC uses an area or "address" of PC upper memory. The I-O 8251EH has no switches to set on the card during installation. Check the memory address of all the other cards installed in the PC, then set the 8251EH to an unused address during configuration. (Two cards occupying the same memory address could cause operating difficulties).

Select the address where the I-O 8251 memory will reside. If the PC does not work properly, refer to Chapter 7, Problem Resolution, for more information on selecting the memory address. (This option will not affect the memory address set on the I-O 8251ME or the I-O 8251 full size card.)

Language

Select the language that matches the AS/400 or System/3X setting. When the language option is selected, the following screen appears.

```
Modify / Create / Delete / Exit          File Name = ro8251
_____

                       Language Options

         Language          |    USA / CAN (Orig)
         Keyboard          |    US World Trade
         Multinational     |    No Yes
     Press enter to select desired language.
```

```
Menu Command Options:


```

Figure 4-5

Language -- The I-O 8251 supports 18 languages, select the language that matches the host system settings. The USA/CAN (Orig) keyboard language configuration utilizes the original I-O keyboard layout, whereas the USA/CAN (Term) utilizes the new I-O keyboard layout.

Keyboard -- Select the type of keyboard (U.S. or World Trade) configured on the host.

Multinational -- If the host is configured for Multinational, select Yes.

Advanced Functions

Change the advanced functions only if using a unique application. Consult the system operator before making any selections. The Advanced Functions options include the following:

- Display
- Keyboard
- Printer

Display

The Display options are used to set up the attributes of the screen display, as shown in Figure 4-6.

```
Modify / Create / Delete / Exit          File Name = IO8251


     Display Setup Options

     Column Separator    ▶   16 Press ENTER to modify
     Status Attributes   ▶   07
     Field Attributes    ▶
     EBCDIC to ASCII     ▶
     Cursor Type         ▶
     Display Adaptor     ▶
     Save Buffer         ▶   16k/32k

         Select desired character for column separator


 Change Options    ↵  Select Options   <ESC> Previous Screen
```
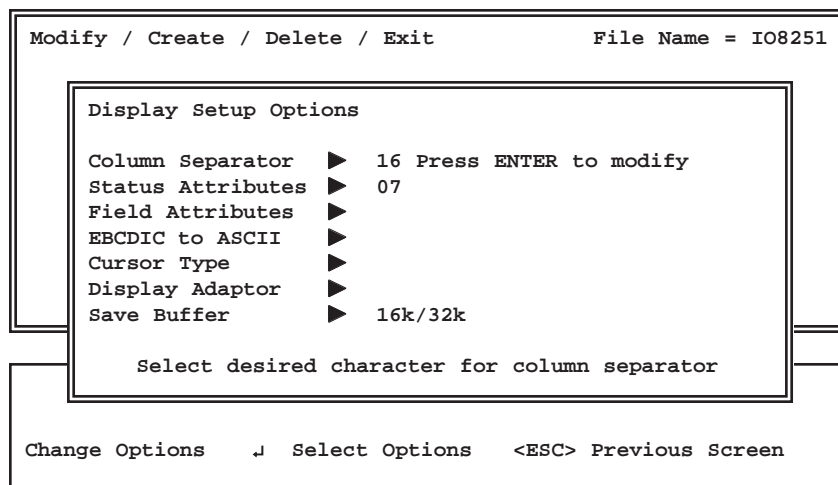
Figure 4-6

Column Separator -- This option allows the column separator to be changed. Move the cursor to Column Separator and press **<Enter>**. A window containing an ASCII table appears. Move the cursor around the

CONFIGURATION

table to highlight the character to use as a column separator. Press the
<Enter> key to select the new character. The default character is
hexadecimal B3, which is a straight vertical line.

Status Attributes -- This option defines how the status line for the host
system is displayed on the PC screen. Find the hexadecimal value in
Table 4-B (monochrome monitor) or Table 4-C (color monitor) for the
status line display, then enter that value here.

Note: The value entered is for the first display session. If using a color
monitor, the software automatically assigns each following session
the prior character attribute. For example, if a red character on a
black background (04) is selected for the first display session, the
second session will have a cyan character (03), the third session a
green character (02), and so on, to help determine which session is
being used. Use care in selecting colors.

Field Attributes -- Host systems use field attributes to identify different
field types on the display screen. For example, a warning or message
field on the screen might be flashing red, while the normal screen fields
might be green. These field colors can be customized to suit individual
tastes or applications. When moving the cursor to the Field Attributes
option, a window appears on the screen showing the current field
attributes. See Figure 4-7.

```
Modify / Create / Delete / Exit              File Name = IO8251
 _____

      _____
     |      Least significant 5250 Attribute Digit (HEX)   |
     |                                                     |
     |    0  1  2  3  4  5  6  7  8  9  A  B  C  D  E  F    |
     |   _____   |
     |                                                     |
     |  2|02 20 07 70 0A 28 0F 00 04 40 84 C0 0C 48 8C 08 | 2 |
     |  3|03 30 06 60 0B 38 0E 00 05 50 01 10 0D 58 09 00 | 3 |
     |                                                     |
     | Enter  5250 Display Attribute code to be changed    |
     | <20 - 3F 00                                         |
     |_____|
         _____
        |           Modify 5250 field attributes       |
     ___|_____|____
    |                                                        |
    |  Change Option ↵  Select Options  <ESC> Previous Screen |
    |_____|
```

Figure 4-7

To change the field attributes, do the following:

1. Find the IBM 5250 attribute to change by its description in Table 4-A, below). Type in the hex value for that field.

2. Press **<Enter>**. A "beep" will sound if an invalid choice is made.

3. Find the appropriate attribute to give this field in Table 4-B or 4-C (see page 4-13), depending on the type of monitor.

4. Enter this value and press **<Enter>**. Notice that the field changes to the attributes selected.

5. Continue to change attributes or follow the directions on the screen to exit.

CONFIGURATION

Table 4-A

IBM 5250 Field Attributes	
Hex Value	**Display**
20	Normal display
21	Reverse image
22	High intensity
23	Reverse image, high intensity
24	Underscore
25	Underscore, reverse image
26	Underscore, high intensity
27	No display
28	Blink
29	Blink, reverse image
2A	Blink, high intensity
2B	Blink, high intensity, reverse image
2C	Blink, underscore
2D	Blink, underscore, reverse image
2E	Blink, underscore, high intensity
2F	No display
30	Normal display, column separators
31	Reverse image, column separators
32	High intensity, column separators
33	Reverse image, high intensity, column separators
34	Underscore, column separators

IBM 5250 Field Attributes	
Hex Value	**Display**
Table 4-A (continued)	
35	Underscore, reverse image, column separators
36	Underscore, reverse image, column separators
37	No display
38	Blink, column separators
39	Blink, reverse image, column separators
3A	Blink, high intensity, column separators
3B	Blink, high intensity reverse image, column separators
3C	Blink, underscore, column separators
3D	Blink, underscore, reverse image, column separators
3E	Blink, underscore, high intensity, column separators
3F	No display

Table 4-B

IBM 5250 Field Attributes	
Hex Value	**Display**
Table 7-A (continued)	
35	Underscore, reverse image, column separators
36	Underscore, reverse image, column separators
37	No display
38	Blink, column separators
39	Blink, reverse image, column separators
3A	Blink, high intensity, column separators
3B	Blink, high intensity reverse image, column separators
3C	Blink, underscore, column separators
3D	Blink, underscore, reverse image, column separators
3E	Blink, underscore, high intensity, column separators
3F	No display

CONFIGURATION

Table 4-C

Color Field Attributes			
1st digit	**Background**	**2nd Digit**	**Foreground**
0	Black	0	Black
1	Blue	1	Blue
2	Green	2	Green
3	Cyan	3	Cyan
4	Red	4	Red
5	Magenta	5	Magenta
6	Brown	6	Brown
7	White	7	White
8	Black Blinking	8	Grey
9	Blue Blinking	9	Light Blue
A	Green Blinking	A	Light Green
B	Cyan Blinking	B	Light Cyan
C	Red Blinking	C	Light Red
D	Magenta Blinking	D	Light Magenta
E	Brown Blinking	E	Yellow
F	White Blinking	F	High Intensity White

EBCDIC to ASCII Translation -- (This option is for advanced users only.) The character codes used by the host are different from those used by the PC. The host uses EBCDIC and the PC uses ASCII. To allow both systems to communicate, an EBCDIC to ASCII translation table is used in the I-O 8251 software.

This option allows customization of the table. For example, to change the "$" character to display as a "#" character. Move the cursor to the EBCDIC to ASCII option and press **<Enter>**. To change the table, first select the EBCDIC code, then enter the EBCDIC code for a "$" character, which is 5B (see Appendix C for an EBCDIC table). Second, enter the ASCII code (see Appendix C for an ASCII table), in this case, the ASCII code for the "#" character is 23.

Note: A new code page may need to be loaded into the PC for the desired character. Refer to Code Page Selection on page 4-20.

Cursor Type -- Choose the cursor to be displayed. The choices include: 1 (blinking block), 2 (blinking overline), 3 (no cursor) or 4 (blinking underline).

Display Adapter -- Some monitors must change modes to display 132 columns, while other monitors may not support 132-column screens at all.

If the monitor supports 132 columns. To enable 132-column display, the AL option must be entered. The AL value is listed in the video card manual as the "Mode Setting." If the mode has two settings, the second one is the BL value; otherwise, leave BL at 00. Choose a setting that supports a minimum of 29 lines.

Save Buffer -- If 132-column screens and DOS graphics applications are being used, more memory is required to save these screens when hot keying between sessions. Select 32K for 132-column screens and DOS graphics application screens, or 16K for all other screens. Only select 32K if there are problems hot keying between sessions.

Keyboard

The keyboard setup allows the keyboard to be customized with options such as modifying the hot key code or the keyboard's scan codes. These options are shown in Figure 4-8.

CONFIGURATION

```
Modify / Create / Delete / Exit            File Name = IO8251
_____

    _____
   |                                        |
   |         Keyboard Setup                 |
   |                                        |
   | Hot Key Code          ▶  Alt <01>   Press ENTER to |
   |                                        modify       |
   |                                        |
   | Type Ahead            ▶  Enabled       |
   |                                        |
   | Scan Code Customize   ▶                |
   |                                        |
   |    Define hot key sequence             |
   |_____|
```

```
Menu Command Options:

   Change Option  ↵ Select Options  <ESC> Previous Screen
```
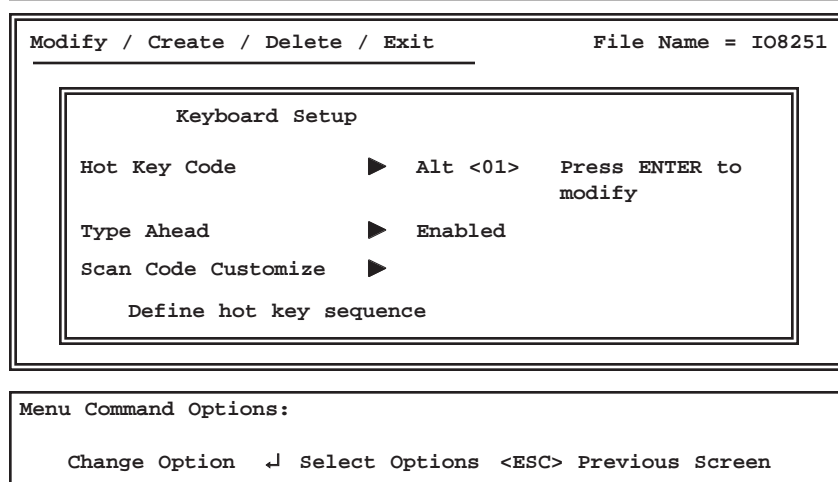
Figure 4-8

Hot Key Code -- The Hot Key Code is the series of keystrokes used to jump from a DOS session to a host session. The default is <Alt><Esc>.

The hot key code can be customized by pressing **<Enter>** at the Hot Key Code option. A new screen will appear displaying the keyboard type. Press the key to use with the <Alt> key, then press **<Enter>**.

Notes: When customizing the Hot Key Code, the emulator will not accept any keys that are scan code (58) or higher.

For Windows and OS/2, the hot key sequence should be <Alt> <Left Shift> and should display ALT <2A>.

Type Ahead -- When Type Ahead is enabled, the PC will hold characters in its buffer. If the host is not ready to accept the characters when they are typed, the PC will then send the characters from the buffer to the host when it is ready for input.

Scan Code Customize -- The Scan Code Customize option defines keys on the keyboard. Each keyboard uses different scan codes to transmit data from the keyboard to the PC. The keyboard type selected is used on all host sessions during emulation. Factory default scan codes are shown in Appendix E.

To change the keyboard scan codes, move the cursor to Scan Code Customize option, and press **<Enter>**. The screen then displays the keyboard layout chosen earlier in the configuration. Follow the steps below to customize the keyboard:

1. Look at the keyboard layout and determine the code of the key to be changed. At the prompt, below the keyboard layout, type in this code.

2. Press **<Enter>** to display the key function. In place of the prompt, the function of the key is displayed in the Normal (unshifted) mode, the Shifted mode, and the Alt mode. The key's normal (unshifted) function is highlighted.

3. Use the up or down cursor arrow keys to highlight the key's mode to be changed. Press **<Enter>**. A list of options appears in a window at the right of the screen.

4. Use the cursor arrow keys to highlight the function to assign to this key. Use Page Up and Page Down for more options. Press **<Enter>**. The window at the right of the screen disappears, and the keyboard layout screen returns. The new description assigned appears next to the key's mode.

5. Press **<Esc>** twice and a prompt to save this file appears.   Answer "**Y**" to save this change, or "**N**" to ignore the changes. Press **<Enter>** and then **<Esc>** to return to the main menu.

Printer

The options in the specialized printer attributes section are used to create a special or unique printer configuration. See Figure 4-9.

CONFIGURATION

```
Modify / Create / Delete / Exit            File Name = IO8251

        Printer Setup

Printer Commands Definition   ▶   Press ENTER to
                                  modify

EBCDIC to ASCII Translation   ▶

Code Page Seletion            ▶

CPT Delimiters                ▶   50 6C

17 to 15 Pitch Correction     ▶

AUTO Printer Sharing          ▶

Orientation                   ▶

APO                           ▶

Paper Size                    ▶

        Modify Printer command parameters
```
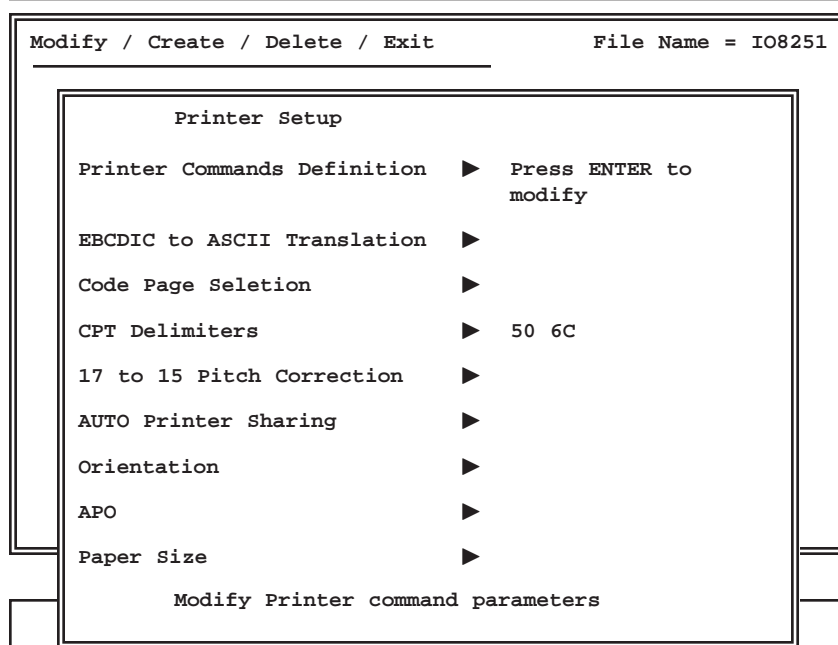
Figure 4-9

Printer Commands Definition -- The Printer Commands Definition function is used to define a new printer or modify the command strings for an existing printer. This is not used for 5219 and 3812 printing.

Press **<Enter>** and type in the session number of the printer to be modified. A prompt for the printer session number will appear. Enter the session number.

If a text printer was chosen, only half a screen of command strings will be shown, ending with the command for Near Letter Quality (NLQ).

The printer commands definition function allows a user to define a new printer or to modify the command strings for an existing printer. All command strings are in hexadecimal and the first set of characters is the string length. The table on the following page lists the various selections and their uses.

Initialization String	String Used to Initialize Printer
5 cpi	5 characters per inch
10 cpi	10 characters per inch
12 cpi	12 characters per inch
15 cpi	15 characters per inch
8 lpi	8 lines per inch
6 lpi	6 lines per inch
Begin draft string	Begin draft quality print
Begin NLQ string	Begin New Letter Quality (NLQ) print
Vertical motion string	Used for vertical increments of the page
Increment (72, 60 48)	The fraction of an inch used by the vertical motion string
Offset to variable data	Number of values before the variable data for the vertical motion string
Variable multiplier	Number multiplied to the variable to get the correct value for vertical motion string
Page length string	Used to setup the page length
Offset to variable data	Number of values before the variable data used for the page length string
Length of variable data	Number of values for the page length
Base to add to variable	Amount added to the variable data to get the correct value for page length
Graphics command string	Sets the printer to accept graphics characters

An example of setting up an escape sequence for an HP LaserJet III would be as follows:

1. Find the 6 LPI codes in the HP LaserJet manual, and write down the HEX, if possible.

2. Translate the decimal codes to HEX using Appendix C.

CONFIGURATION

3. The HP LaserJet codes are:

    027 038 108 054 068 Decimal
    1B 26 6C   36 44   Hexadecimal

4. There are five codes. Input these codes with the first one as 05 and the remainder following.

5. The codes for 6 LPI should be entered as follows:

    05 1B 26 6C 36 44

EBCDIC to ASCII Translation -- (This option is for advanced users only.) The character codes used by the host are different from those used by the printer. The host uses EBCDIC and the printer uses ASCII. To allow both systems to communicate, an EBCDIC to ASCII translation table is used in the I-O 8251 software.

This option allows advanced users to customize this table. For example, to change the "$" character to print as a "#" character, move the cursor to the EBCDIC to ASCII option and press **<Enter>**. A new screen appears showing the translation table. To change the table, select the EBCDIC code to be changed. Enter the EBCDIC code for a "$" character, which is 5B (see Appendix C for an EBCDIC table), and then enter the ASCII code to be printed (see Appendix C for an ASCII table); in this case, the ASCII code for the "#" character is 23.

Code Page Selection (4214 only) -- The default code page selection is Code Page 850. If the printer supports it, change to Code Page 437 by pressing **<Enter>** at this field and selecting it. Refer to the printer user's guide for information regarding the code page used by the printer.

Notes: If a change is made to Code Page 437, any changes made to the Code Page 850 character set will be lost.

Code Pages are different character sets used by the printer. Change this if unusual characters are printing.

CPT Delimiters -- Command Pass-Thru allows printer control not available through host commands. For example, it is possible to select bold printing by simply placing commands in a host document.

The I-O 8251 card recognizes the commands and "passes the command through" to the printer. A delimiter (which default is &%) signals the card to pass the command through. Select the new delimiter by placing the hex codes in the spaces on the screen. See page 6-23 for more information on Command Pass-Thru.

17 to 15 Pitch Correction -- Most PC printers do not support 15-pitch printing, but host systems use 15 pitch in many applications.

If the printer supports 17 pitch and the document requires 15 pitch, select this option by moving the cursor to the option and pressing **<Enter>**.

When selected, it may cause printers to print very slowly in 15 pitch. This option may also be turned on and off from the Printer Control screen while in emulation (see Chapter 5).

Note: If using the STD memory option, a prompt to define the printer session configured will appear.

Auto Printer Sharing -- When Auto Printer Sharing is enabled, printout from the host or the PC is accepted. This option may also be turned on and off from the Printer Control screen while in emulation (see Chapter 5).

Note: DOS print jobs will only print while in the DOS session. If hot keying to a host session while printing a DOS job, printing will be suspended until returned to the DOS session.

Orientation (3812 only) -- This option is used to select the default print orientation which are, COR (Computer Output Reduction), Portrait, or Landscape, for the 3812 printer emulation (see "3812 Printer Emulation" on page 6-3 for more information).

APO (3812 only) -- This option is used to enable or disable Automatic Page Orientation. When enabled (if the COR orientation is enabled) landscape orientation will be automatically selected if the paper width is greater than its height. Portrait will be selected if the paper width is less than its height. (See "3812 Printer Emulation" on page 6-3 for more information.)

Paper Size -- Use this option to select the size of paper used in the printer as follows:

CONFIGURATION

Normal = Letter size: 8.5 x 11 in. (215.9 x 279.4 mm) or Legal size:
8.5 x 14 in. (215.9 x 355.6 mm)

A4 = A4 size: 8.27 x 11.69 in. (210 x 297 mm)

No Size = Accepts the paper size loaded in the printer

5 OPERATION

With the I-O 8251 installed and configured, operation with the host can now begin.

Starting Emulation

To activate emulation between the PC and the host system, complete the following steps:

1. Change to the 8251 directory by typing **CD \8251** and press **<Enter>**.

2. Type **IO8251** and press **<Enter>** (if using a new configuration, type **IO8251 [file name] <Enter>**). The I-O data box appears, and the I-O 8251 begins communicating with the host to make a connection for each session configured. As this effort continues, messages on the screen advise of the different sessions and their status.

After the I-O 8251 has been successfully installed into the PC, the startup of the emulation will depend on the startup option configured. An emulation screen (3X Emulation) or a DOS prompt (DOS) will appear. Use the "hot key" to toggle between emulation and DOS.

Hot Key Sequence

The hot key sequence moves from one session to another. Press and hold the **<Alt>** key and press the **<Esc>** key (or press the custom hot key sequence chosen in the configuration) to move from a DOS session to a host session. There are a number of ways to use the hot key sequence, as described below.

1. If there is no active printer session, the hot key sequence moves from an active host system session to a DOS session. The same key sequence also returns to the host session from DOS.

2. If a printer session is active, the hot key sequence will rotate through all available sessions.

3. While using multiple host sessions, there are two (2) hot key sequences available: direct access hot key and round robin hot key.

OPERATION

Direct Access -- This key sequence goes directly to a host session. It must be enabled on the configuration screen prior to using. For example, to move to host session 1, press and hold **<Alt>** and press **<1>**, session 2, press and hold **<Alt>** and press **<2>**, etc. This method works only on sessions configured on the host. If a session is not configured, the hot key will go to the next available session.

<Alt><1, 2, ..7>

Host Session 1	◄ - - - - - ►	Host Session 7
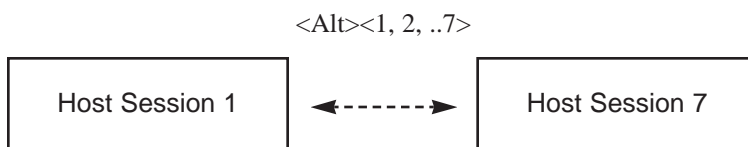
Round-Robin -- This key sequence moves sequentially through the available sessions as illustrated below. Starting at the current session, this sequence advances to the next session (a session could be the Printer Control Screen), and then to DOS. From DOS go back to the lowest session and advance through all the sessions again. To use this method, press and hold **<Alt>** and press **<Esc>** (or the customized sequence).

                 <Alt><Esc>   <Alt><Esc>

Host Session	◄ - - - ►	Printer Control Screen	◄ - - - ►	Host Session
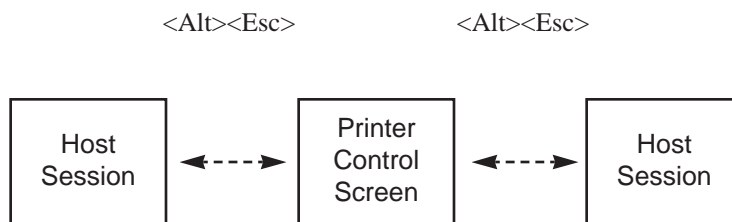
Windows Hot Key Sequences

These next sequences can be used to jump between applications while in Windows. Starting at the current active emulation screen, this sequence advances to each of the current active applications. To use this method, press and hold **<Alt>**, then press **<Tab>** to roll through the active applications. Using **<Alt>** and **<Esc>** allows rolling through the active applications, but when an application is minimized, **<Enter>** must be pressed to activate the application. To change emulation sessions while in an emulation window; press **<Alt> <1>** for session 1, **<Alt> <2>** for session 2, etc.

<Alt><Tab>   <Alt><Tab>

| Emulation | ← - → | Application | ← - → | Program Manager |
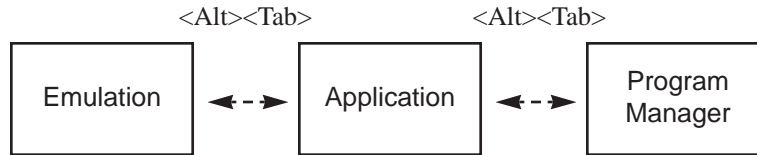
Note: When using Windows in the standard mode, hot key to the DOS side of emulation, then use <Alt><Tab> to roll through applications.

Status Line

The bottom line of the screen is the session status line. It displays information sent from the host, identifies which host address and session is currently accessed, and highlights other information regarding the active sessions. See Table 5-A for a list of the status line characters and their meaning. A status character is active when highlighted.

Table 5-A

Status Line Characters	
Character	**Meaning (When Highlighted)**
rr-cc	CURSOR LOCATION (row-column) -- Identifies the cursor location by row and column.
SA	SYSTEM AVAILABLE -- The host system is communicating with the active session.
MW#	MESSAGE WAITING -- A message from the host system is waiting for the active session. The # is the session the message is waiting for.
KS	KEYBOARD SHIFT -- Keyboard shift is active
IM	INSERT MODE -- The LU session is in insert mode.
II	INPUT INHIBITED -- Keyboard is locked, either because the host system has not completed a previous command, or there is a pending error condition.
KB	KEYBOARD BUFFERING -- Highlighted when there are keystrokes waiting to be sent to the host.
Sn	LOGICAL UNIT -- Where "n" is the logical session or unit that is active.
An	HOST ADDRESS -- Where "n" is the host address.

Printing

Print from either DOS or host applications on the attached printer. To print from DOS, use either the DOS print command or print through a software program.

When printing host jobs, specify the attached printer's host ID. This enables the host to route the print job to the printer. The system operator will assign an ID to the attached printer when configuring the printer on the host. To do a host print screen to the locally attached printer, press **<Alt> ***.

Printer Control Screen

The printer control screen can modify any host printing sent to the attached printer. The PC is unaware that printing is taking place, and work can continue printing host data.

Certain printer functions are controlled from the Printer Control Screen. While in emulation, hot key to the session assigned to the printer. In place of a sign-on screen, the Printer Control Screen will appear. See Figure 5-1.

The Printer Control Screen is divided into three (3) sections as follows:

1	Options	F1	Start/Stop Printer
		F2	Truncate/Wrap-around
		F3	Line Feed
		F4	Form Feed
		F5	Cancel Print Job
		F6	User Override of Pitch, Quality, etc.
		F7	Host Control of Pitch, Quality, etc.
		F8	Re-Initialize Printer
		F9	Buffer Print
		F10	Assign Printer to DOS/Host/Auto
		Shift F1	17 to 15 Pitch Correction

2	Printer is attached to:	Host DOS Auto	
	Host Status	**Format Controls**	**PC Printer**
	Ready	User Override Active	Selected
	System Available	Host Control Active	Paper Out
		Buffer Print Mode	Busy
		Truncate	Fault
		17 to 15 Pitch Fix	Check Printer

3	Session: 5XX6XXX

Figure 5-1

Section 1 - To select any of the functions in section 1, press the indicated function key. See Table 5-B for a description.

Table 5-B

Printer Commands	
Command	**Printer Function**
F1	START/STOP - Press F1 to start the printer, temporarily suspend printing for printer adjustments, or after receiving a printer error.
F2	TRUNCATE/WRAP-AROUND - In truncate mode, narrow carriage printers ignore data beyond 8". In wrap mode, the data prints on the next line.
F3	LINE FEED - Each time the F3 key is pressed, the paper in the printer advances one line.
F4	FORM FEED - The paper advances to the top of the next page and resets the line and column counts to one.
F5	CANCEL PRINTER JOB - Sends a cancel request to the SYstem/3X or AS/400 host console. This will not cancel data already in the printer buffer.
F6	USER CONTROL OF PITCH, PRINT QUALITY AND LINE SPACING - Defines the pitch, printer quality and line spacing for the attached PC printer. Host commands which alter these values are ignored.
F7	HOST CONTROL OF PITCH, PRINT QUALITY AND LINE SPACING - With this enabled, host commands control pitch, print quality, and line spacing.
F8	RE-INITIALIZE PRINTER - Returns to the original printer configuration.
F9	BUFFER PRINT - Prints all host commands for diagnostic use.
F10	ASSIGN PRINTER TO DOS/HOST/AUTO - Prints only DOS jobs when DOS is highlighted, only host jobs when Host is highlighted, or automatically selects from host or DOS when Auto is highlighted.
Shift F1	Shifts from 17 to 15 pitch printing (5219 emulation does not support this function).

Section 2 - Section 2 of the Printer Control Screen shows host and PC printer status. These indicators highlight important information regarding the printer's status when it is assigned to either the host or the PC.

Printer attached to -- Indicates which system the printer is attached to: the host, DOS, or auto. If attached to the host, print jobs can be sent from the host to the PC printer. If attached to DOS, the printer will not accept print jobs from the host, but a PC print job can print. Auto allows the I-O 8251 to automatically switch from host to PC printing and vice versa without going back to the printer control screen (DOS print jobs will only print in the DOS session). See page 5-9 for more information on automatic printer sharing. The screen will show which is active in reverse image. See Table 5-C for information on these messages.

OPERATION

Table 5-C

Printer Status Indicators	
Status Message	**Status Indicators**
HOST PRINTER	
READY	The printer is ready to receive data.
SYSTEM AVAILABLE	The host system is operational.
CHECK PRINTER	An error condition, such as a paper jam or paper out, has been detected by the printer.
USER OVERRIDE ACTIVE	After selecting F6, this indicator remains highlighted. Host commands for pitch, print quality and line spacing are ignored.
HOST CONTROL ACTIVE	The host commands for pitch, print quality and line spacing are active (F7).
BUFFER PRINT MODE	The printer is in buffer print mode (F9).
TRUNCATE	When highlighted, truncate mode is active. Press F2 to release.
17 to 15 PITCH FIX	When highlighted, the 17 to 15 pitch correction is active. Press SHIFT F1 to release. (Only affects dot matrix printers).
PC PRINTER	
Parallel Printer	
SELECT	Printer powered on and ready to receive data.
PAPER OUT	Printer is out of paper.
BUSY	Printer is processing data.

Section 3 - The Active Display Session is displayed in reverse video at the bottom of the status section of the Printer Control Screen. The host cable address number is also shown.

Printer Override Screen

Press **<F6>** (User Override of Pitch, Quality, and Line Spacing), from the first section of the Printer Control Screen, the Printer Override screen is displayed. This screen allows "override" or changed settings for the printer when printing host print jobs. Once activated, host commands are ignored and the choices on this screen control the printing.

Note: A PC print job cannot be controlled from this screen.

Select any of the printer controls by pressing the function key shown to the left of the control description. The printer must be in a ready state before selections take effect. If the printer is not ready, a message is displayed and the selection does not take effect.

Note: When in 5219 or 3812 emulation, the top of form command is used. All other emulations use line feed to get to top of form.

Automatic Printer Sharing

The I-O 8251 will automatically switch from PC printing to host printing and vice versa. This is accomplished by a 10 second timeout at the end of a print job. If there is no further data from the last print job during the 10-second timeout, the I-O 8251 switches to the other printing source.

To activate the automatic printer sharing, press **<F10>** from the Printer Control Screen until Auto is highlighted.

The printer appears busy to the PC when a host job is printing. This may cause the PC job to terminate. To prevent PC print termination, set the printer port to "infinite retry" through the DOS MODE command. For example: **MODE LPTn: RETRY=R** (where n is the line port)

Note: DOS jobs will only print while in the DOS session. If hot keying to a host session while printing a DOS job, printing will be suspended until the session is returned to DOS.

OPERATION

File Transfer

The File Transfer function allows transfer files from the host to the PC (download) and from the PC to the host (upload).

If transferring files in an application, make certain the application will accept the file format.

The I-O 8251 software is compatible with many file transfer utilities, such as a PC Support/36, /38, AS/400, and third-party packages such as ETU and DecisionLink. There are two selections that must be defined during the I-O 8251 configuration for file transfer to function:

1. Session number one must be a display device, not a printer (see page 4-5).

2. Select "On" for the File Transfer option (see page 4-7).

Once the I-O 8251 is configured for file transfer, refer to the file transfer utility program manual for instructions on how to proceed.

Shared Folders -- This function allows PC data to be stored on the host in the same folder as the user when on the host.

Virtual Disk -- This function allows a portion of the host disk to be assigned to the PC. This disk space can be accessed as another disk drive. It expands PC storage capacity, and allows access to data by other PCs.

Virtual Printer -- Allows data to be printed from the PC to a host system printer. This function must be configured during installation of the IBM PC Support software on the PC.

For more details regarding file transfer, virtual disk, and virtual printer applications, refer to IBM PC Support manuals and related publications.

Ending Emulation

After completing work in a host session, follow the log off procedure for each active display session. At a sign-on screen, press **<Ctrl><Alt><Del>** at the same time to end emulation and return to DOS.

Terminate Windows emulation by using the Direct Access Hot Key method. For example, if the last host session is **<3>**, press **<Alt><4>**. (Press the next inactive session.) The prompt to **Press <Ctrl C>** appears. Press and hold **<Ctrl>** and then press **<C>**. This will terminate emulation in Windows and effectively handle the memory.

I-O®
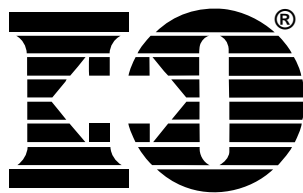
"Products That Work"

This page left intentionally blank.

6 ADVANCED FEATURES

The I-O 8251's standard software option (for seven sessions) offers some unique features for users needing extra productivity tools. These added features include Record/Playback, 3812 printer emulation or 5219 printer emulation, and the I-O Command Language.

Record/Playback

The Record/Playback feature can be used to record a sequence of keystrokes for later playback by pressing three keys. This eliminates repeated keystrokes.

To control the Record/Playback feature, use the following keys:

Keystroke	Function
<Alt><F10>	Record a key (functions as the <Record> key on a 5250 keyboard)
<Alt><F8>	Playback a key (functions as the <Play> key on a 5250 keyboard)
<Alt><F7>	Delete a Record/Playback key
<Alt><F9>	Clear all Record/Playback keys

Recording a Sequence

To record a keystroke sequence, follow these steps:

1. Press and hold the **<Alt>** key, then press **<F10>**. The number in the lower left of the screen to the right of a blinking "R" is the number of keystrokes available for recording (maximum of 1,000).

2. Press the function key (F1-F9, 0-9) to assign the recorded sequence to be played.

3. Type the keystroke sequence to be recorded.

ADVANCED FEATURES

4. When finished with the keystroke sequence, press **<Alt><F10>** to save the sequence and exit the Record mode.

5. To permanently save a recorded sequence, it must be saved to the disk of the PC. To do this, hot key to DOS, then change to the drive and directory where the I-O 8251 software is stored. Type **savekeys** and press **<Enter>**. A message will appear stating that the recorded keys are saved. Each time emulation is started, the emulator software will automatically load the saved keystrokes at the same time, so saved keystroke sequences can be used.

    Note: This does not work in Windows emulation.

Playing a Recorded Sequence

Follow these steps to play back a recorded sequence:

1. Press **<Alt><F8>** to enter Play mode. A blinking "P" appears in the lower left of the screen.

2. Press the function key (F1-F10, 0-9) containing the recorded sequence to be played.

3. The playback begins at the cursor location. When finished, the playback exits Play mode.

    Note: Some keys such as <Alt> and <Shift> count as two keystrokes--one when pressed and another when released.

Deleting a Sequence

To delete a recorded sequence, press **<Alt><F7>**. A blinking "D" appears in the lower left of the screen. Press the function key that contains the recorded sequence to be deleted, and the sequence will be deleted.

Clearing All Sequences

To clear all recorded keystroke sequences assigned to all the function keys, press **<Alt><F9>**. A prompt in the lower left of the screen asks, "Clear All (Y/N)?" Press "**Y**" to clear all the recorded sequences.

3812 Printer Emulation

The I-O 8251 allows an attached laser printer that supports HP or PPDS modes to emulate the IBM 3812-1 (non-IPDS) printer.

The 3812 printer provides font changing capability plus text rotation and compression features called COR (Computer Output Reduction) and APO (Automatic Page Orientation). The I-O 8251's 3812 printer emulation provides font changes and a true 3812 COR emulation. It also obeys host commands for duplexing like an IBM 3816 printer when issued from within word processing. Refer to duplex printing on page 6-21 for information on duplex printing in data processing applications.

When the system operator configures the printer on the host, a default font ID is configured for the printer. The default font ID should be the most commonly used font. The font ID can then be changed as necessary with a font ID in the word processing document see Font Change Commands or a printer override or OCL command in the data processing report.

Font Change Commands

You can place font change commands within the text of a word processing or data processing document to select a font other than the default font. The commands appear on the screen but do not print. The font change takes effect immediately and continues until the next font change. See the Font (FGID) Reference chart in Appendix D for a list of font IDs.

To change fonts, use the following format to type in a font change command.

ADVANCED FEATURES

¬Q2304 where ¬ is a "logical not", Q indicates a font change, and 2304 is the font ID.

To select a resident scalable font with a specific point size, use the following format:

> ¬F5687,14 where ¬ is a "logical not", F indicates a resident scalable font change, 5687 is the font number, and 14 is the desired point size. The resident scalable font numbers are located in Appendix J.

All text following the command will be printed in the new font until you specify another font change command.

Note: The host may send the original font code to the printer at the beginning of each page. If this happens, you may need to put a font change command at the beginning of each page of your document.

If the font change command changes the pitch, the host may continue to format each line according to the original font ID pitch. For Text Management/38 and other word processing programs, you may not be able to specify more than one font ID per line.

Data Processing

To change font IDs for a data processing report, you must add the font to the CL or OCL printer statement (for the System/36, you must convert the font number to hexadecimal before adding it to the printer statement). The font IDs listed in the table below can be used in host printer statements.

Font ID	Hex	Pitch (CPI)	Typeface
05	05	10	Presentation
11	0B	10	Courier
13	0D	10	Courier
80	50	12	Prestige Elite
85	55	12	Courier
86	56	12	Prestige Elite
87	57	12	Letter Gothic
91	5B	12	Letter Gothic
158	9E	Prop.	Times Roman
159	9F	Prop.	Time Roman Bold
160	A0	Prop.	Helvetica
162	A2	Prop.	Helvetica Italic
223	DF	15	Letter Gothic
254	FE	17.1	Letter Gothic

Print Orientation

When operating the printer in IBM 3812-1 emulation mode, the print orientation of the host document or report is determined by a variety of factors. These factors are in order of their impact on the final print orientation:

1. Page Rotation specified in the print file of a data processing document or in the document format menu of a word processing document.

2. Automatic Print Orientation (APO) setting on the printer interface.

3. Print Orientation setting on printer interface.

ADVANCED FEATURES

As you read the following explanation, refer to the diagram on page 6-8 for an illustration of the print orientation logic.

1. Page Rotation

Degrees of page rotation can be specified through the print file of a data processing document or in the document format menu of a word processing document. See "Changing Page Rotation Settings" below for a description on how to access the print file and the document format menu. The available settings are 0, 90, 180, 270 degrees and AUTO (AS/400 only). The print file also offers DEVD and COR (AS/400 only).

    a.   With 0, 90, 180, and 270 degrees you can specify the desired rotation directly from the host.

    b.   The COR setting will always print COR, unless the print quality (AS/400 and S/38) is set to NLQ or STD, or Text (S/36) is set to YES. If the page rotation is set to COR and print quality/text is one of the above mentioned settings, the print job will print in portrait in the requested font.

    c.   With the DEVD and AUTO settings the host does not influence the print orientation. Rather, the print orientation is determined by the settings on the printer interface.

2. Automatic Print Orientation

If no page rotation was specified on the host, the emulator's Automatic Print Orientation (APO) feature is the first setting to determine the final print orientation. This feature automatically rotates print jobs with dimensions of 8.5 x 14 inches or smaller to portrait or landscape orientation.

    a.   With the APO feature ON, the emulations first checks the dimensions of the host print job. If the print job is larger than 8.5 x 14 inches the emulator cannot fit the print job on one page. In this case the orientation of the print job is determined by the print orientation setting on the Printer Control Screen.

    b.   If the dimensions of the print job are 8.5 x 14 inches or smaller, the emulation compares the width to the height and automatically

rotates the print job to portrait if the height is larger than the width or landscape if the width is larger than the height.

The dimensions of a word processing document are specified directly through the document format menu. The dimensions of a data processing report are calculated in the following manner:

Width = Page Width (in number of columns) / CPI
Length = Page Length (in number of lines) / LPI

3. Print Orientation Settings

The emulator's print orientation settings determine the orientation of the host document/report AFTER the host's page rotation setting AND the interface's APO setting have been obeyed.

The available print orientation settings are portrait, landscape, and COR. The COR feature rotates documents to landscape orientation and compresses the font as needed to fit the complete document on a standard 8.5" x 14" page. This allows the user to print a report initially designed to fit on 14 7/8" x 11" green bar paper onto a standard letter or legal size page without redesigning the report.

When used together the APO and COR features can be a powerful tool to print host jobs in portrait, landscape, or if required in landscape with reduced font (COR) without user intervention.

The COR option is a true 3812-1 emulation. With certain page rotation settings on the host, the IBM 3812-1 printer allows the user to manipulate the final print orientation through the print quality setting. Note though, that this "override" only applies if the interface's print orientation is set to COR, host override allowed.

START
Page Orientation
Logic

1
Page Rotation

Use specified page rotation
(0, 90, 180, 270 degrees)
with requested font

COR

DEVD, AUTO,
not specified

2
Is
Automatic Print
Orientation
Active?

NO   YES

2a
Is
Page Size
Valid?

NO   YES

2b
Width
Greater than
Height?

NO   YES

Orientation set
to Landscape

Orientation set
to Portrait

3
Print Orientation

LANDSCAPE
in requested font

Orientation set to COR,
host override allowed

LANDSCAPE
in requested font

Orientation
set to COR

3a
What is
the Print
Quality?

Draft   Std or NLQ

PORTRAIT
in requested font

Valid Page Size =
8 1/2" x 14" or smaller

11" x 17" or smaller if
11 x 17/A3 selection
is set to ON

Computer Output Reduction (COR)
0.5" margins top and left
LANDSCAPE in reduced font:
10 pitch font to 13 pitch
12 pitch font to 15 pitch
15 pitch font to 20 pitch
Vertical spacing is:
 6 LPI = 8.7
 8 LPI = 11.6

Figure 6-1

The following tables show what page rotation settings can be manipulated through print quality settings and how the combination of page rotation and print quality affects the final print orientation.

Host System	Page Rotation Setting	Print Quality Setting causing portrait orientation
AS/400	*DEVD (print file)	*NLQ, *STD
AS/400	*AUTO (OfficeVision/400)	NLQ, Text
S/36	not specified	Text - Yes
S/38	not specified	*NLQ, *STD

COR is defined as printing in landscape orientation, top left margins set at 0.5", with CPI and LPI reduced according to the following tables:

Host CPI	Reduced to:
10	13.3
12	15
15	20

Host LPI	Reduced to:	Maximum Rows (Lines)/Page
6	8.7	66
8	11.6	88

The table on the following page shows the print orientation results desired and recommends a combination of settings required to obtain that result. Most print orientation results can be achieved with different setting combinations. Refer to the diagram and accompanying text on page 6-8.

ADVANCED FEATURES

		Printer Interface Setting for	
Result	**Host Setting**	**APO**	**Print Orientation**
Data processing: Print reports with a width of 80 columns or less (at 10 CPI) in portrait <u>AND</u> print reports with a width of 132 (at 10 CPI) or 198 (at 15 CPI) columns in landscape with reduced font (COR)	Degree of Page Rotation .... *AUTO	ON	COR
Word processing: Print documents of up to 8.5 x 14 in portrait, 14 x 8.5 in landscape, and anything larger in landscape with reduced font (COR)	Rotate Paper.....=1 (Automatic)		
Print all reports/docu-ments in landscape with reduced font (COR)	Degree of Page Rotation .... *AUTO; Rotate Paper .....=1 (Automatic)	OFF	COR
Print all reports/docu-ments in landscape with requested font	Degree of Page Rotation .... *AUTO; Rotate Paper .....=1 (Automatic)	OFF	Landscape
Print all reports/docu-ments in portrait with requested font	Degree of Page Rotation .... *AUTO; Rotate Paper .....=1 (Automatic)	OFF	Portrait

Changing Page Rotation Settings

Before changing page rotation settings, first verify the current settings. In Office Vision/400 and DisplayWrite/36, page rotation settings can be viewed and changed in the following manner:

1. Press **F20** "Format options."

2. Press **1** "Document options" then ENTER.

3. Press **1** "Document format" then ENTER.

4. Press **4** "Page layout/paper options" then ENTER.

5. Press **Page Down** to scroll to the second screen.

6. Locate "Rotate Paper . . . option."

7. Move the cursor to the currently selected rotation setting and type in the desired selection.

To permanently change the page rotation setting for a data processing report the print file must be changed. This should be done by an MIS staff member, since a changed print file most likely affects many printers. The page rotation setting can be changed temporarily by overriding the print file. The print file must be changed or overridden before the host creates the print job. An overridden print file applies only to print jobs created on the host session that was active when the print file was overridden.

To view the current print file settings, type **CHGPRTF** followed by a space and the name of the print file on the command line of the host. Press **F4**. Do not change any settings unless authorized by the IS director.

To change the print file:

1. Type **CHGPRTF** on the command line of the host, and press Enter.

2. Type in the name of the print file to be changed.

ADVANCED FEATURES

3. Press **F10** to display additional parameters.

4. Press **Page Down** to scroll to the fourth screen.

5. Locate "Degree of page rotation . . ." option.

6. Move the cursor to the beginning of the dashed line and enter the desired selection.

7. Press ENTER to activate the selection and exit the print file menu.

To override the print file:

1. Type **OVRPRTF** on the command line of the host, and press Enter.

2. Type the name of the print file to be changed.

3. Press **Page Down** to scroll to the third screen.

4. Locate "Degree of page rotation . . ." option.

5. Move the cursor to the beginning of dashed line and enter the desired selection.

6. Press ENTER to activate the selection and exit the print file menu.

Word Processing

When your system operator configures the printer on the host, a default font ID is configured for the printer. The default font ID should be the most commonly used font. The word processing program may also have a default font ID. Since the default font ID can vary depending upon the system setup, ask your system operator if you have questions about the default font ID on your system.

The font ID can be changed as necessary with a font ID command in the word processing document. You can use font change commands, or you can select a font ID number within the word processing program. Refer to the word processing program operator's manuals for information on changing font IDs within the program.

The interface allows bolding, underlining, and super/subscripting by recognizing the host commands for these features in the WP (word processing) document. The interface uses a shadow print for bolding fixed pitch fonts, even on small and italic fonts. A bold font is specified to bold proportional and typographic fonts.

Formatting the Page

The printer prints up to 66 lines at 6.25 LPI (the line spacing is compressed slightly to fit). The System/36 only allows 65 lines per page. If you get one or two lines at the top of the next page, it's usually because you have formatted more lines per page than can be printed.

Paper Size

Configure the printer's setup to the paper size you use most. The MPP and font must match the paper size exactly to work correctly. The emulator only recognizes these paper sizes:

Letter Paper	8.5 x 11 in. (215.9 x 279.4 mm)
A4 Paper	8.27 x 11.69 in. (210 x 297 mm)
Legal Paper	8.5 x 14 in. (215.9 x 355.6 mm)
Executive Paper	7.25 x 10.5 in. (184.2 x 266.7 mm)

If you choose any other paper dimensions in the word processing program, the interface ignores it and uses the previous paper size choice.

You can also choose a paper size override through a host download command, or front panel selection as described in Chapter 3, Configuration. The "No Size" selection uses the paper installed in the tray, regardless of size. The "A4 Size" selection uses A4 paper only.

With A4 paper size selected, 10 CPI fonts will print as 10.3 CPI. This allows 80 columns to be printed in portrait on A4 paper.

The following describes how to select legal size paper in DisplayWrite/36 or AS/400 Office.

1. Choose legal size paper on the host and send the print job.

ADVANCED FEATURES

2. The printer's operator panel displays 3 for "Load paper request." Install the legal size paper tray into the printer.

3. Press Start/Stop on the printer operator panel to continue.

The System/38 only sends margins and other format specifications to a printer when they are different from the previous document or when the printer has been turned off. To choose a different size paper, you must:

1. Select a paper size in the program.

2. Install the correct paper size into the printer.

3. Power off the printer for about five seconds, then power it back on again.

4. Release the job for printing at the printer's controlling workstation.

The line format screens in DisplayWrite/36 (Command 20) also permit you to select "Justify," which aligns the right margin. For best results in using justification, change the zone width to 1 (instead of 6). Right justification is only supported for fixed pitch fonts.

Envelope Printing

Use landscape orientation for envelope printing with the first line of the address on line 30 and a left margin of 55. A trial run with a blank sheet of paper helps in positioning the address. There are three ways to select envelopes:

1. Select "Manual Feed" in the word processing program's paper feed selections. The printer displays 3 on the operator panel. Place envelopes into the manual feed tray and press Start/Stop, then press Paper to select manual.

2. Place envelopes into the paper tray and move the tray stops to the proper position. Specify the bin number in the word processing program and the printer prints envelopes from the paper tray.

3. Select "Envelope Feed" in the word processing program's paper feed selections, a paper width of 7.5" or 9.5" (or 220 mm), and paper length

of 11.0". The printer automatically finds the envelope feeder (if installed) and prints from the feeder.

Document/Envelope Printing

You can print a letter and an envelope from DisplayWrite/36 or AS/400 Office in the same document by following this procedure:

1. Set the format for your letter. Enter your letter file. On the first typing line, press CMD20 for "Change Format."

2. Select 1 for "Entire Document Options," then another 1 for "Document Format." Now select 3 for "Typestyle/Color."

3. Select the font ID number for your letter, such as No. 11, 86, etc., then press **<Enter>**.

4. From the Document Format screen, select option 4 for "Page Layout/Paper Options." Scroll to the second screen of these options and select a paper size of 8.5 (width) x 11 (length) inches and a paper source of 1. If the letter is more than one page, select a paper source of 1 for the following pages. Press **<Enter>** to return to the Document Format screen, then CMD12 to return to the Document Options screen.

5. You can now set up the alternate format for the envelope. Select 2 for "Alternate Format," then 3 for "Typestyle/Color." Select the font ID for the envelope, such as 5, and press **<Enter>** to return to the Alternate Format screen.

6. Select 4, "Page Layout/Paper Options." Choose a first typing line of 1, then scroll down to the second screen of the options and choose a paper width of 7.5 (monarch size) or 9.5 (commercial, or #10 size) and a paper length of 4 inches. For a paper source, select 5 for "Envelope Feed." Press **<Enter>** to return to the Alternate Format screen.

7. Select option 1 for "Margins and Tabs" and make the left margin 1. Press **<Enter>** and CMD3 until you are back in your document.

8. Type in the text. When you're done, add in a "page end" by pressing **<Alt><P>**.

ADVANCED FEATURES

9. Now load in your alternate format for the envelope. To do this, press the CMD5 key, "Goto," and type in **RF** for "Resetting Format." Press **<Enter>**. Select option 4 on the Alternate Format screen, "Begin Alternate Format." Press **<Enter>**.

10. The document will now be displayed with the alternate format. The cursor will be on the first typing line of 1 with a left margin of 1. Type in the envelope address, and send the file to print. The letter will print out first, followed by the envelope.

Note: The printer may eject a blank page when you change printing orientation. If the Buffer light and Ready light remain steady, press the Print/Check button on the printer's operator panel to eject the last page.

Duplex Printing

Some printer models can print both simplex (single sided) and duplex (double sided). They can print both long edge (landscape) and short edge (portrait) duplex printing.

The I-O 8220 allows access to the printer's duplexing capability in a variety of ways:

1. If you are running OS/400 V2R3 on the host, simply select duplex printing in the printer file. The menu option is called "Print on both sides . . ." and is found on the second to last menu screen. Available selections are *NO, *YES, and *TUMBLE.

2. Select duplex printing in the word processing program. In the OfficeVision/400 printer options menu, the printer option is called "Type of page printing . . ." and the available selections are: 1 = Single-sided; 2 = Double-sided; and 3 = Double-sided tumble.

3. Insert the I-O duplex printing command on the first line (line 1, position 1) of the document. The I-O duplex printing commands are:

    ¬D0 for simplex printing
    ¬D1 for duplex printing, long-edge
    ¬D2 for duplex printing, short-edge (tumble)

For some duplex printing, if the last page is blank on the back side, the information for the last page may remain in the printer until the next printing job is received. If you want to print the last page, take the printer off-line by pressing the ONLINE button, then press the FORM FEED button to print the last page. Put the printer back on line by pressing the ONLINE button again.

5219 Printer Emulation

The I-O 8251's 5219 emulation is for LaserJet printers. The HP LaserJet printer file is automatically used when 5219 emulation is selected.

The I-O 8251 allows bolding, underlining, and super/subscript by recognizing the host commands for these features for DP or WP applications.

The different character styles and pitch are controlled through the IBM typestyle number or font ID. The I-O 8251 uses the IBM typestyle number to select an HP font from a cartridge. The cartridges shown in the Typestyle Reference Chart in Appendix D are the only fonts supported.

The system operator will specify a default font ID when configuring the 5219 address on the host system. The default should be the font ID most commonly used. Select one of the font ID numbers from the Typestyle Reference Chart in Appendix D with an asterisk (*) indicating the default font ID, then change it as necessary in the WP or DP document RPG program.

If a data processing report is sent to the printer, the typestyles in the printer's CL or OCL statement must be changed.

Data Processing

Condensed print and 8 LPI commands do not work in data processing documents, because 5219 printers only understand font ID commands.

For DP documents, such as RPG-generated prints, the system default typestyle is used unless fonts are changed by specifying the typestyle in the OCL or CL printer statement. Since only certain fonts are accepted by the host in OCL and CL statements, only the font ID's from the Typestyle Reference Chart in Appendix D with an asterisk (*) can be used.

ADVANCED FEATURES

To change typestyles in DisplayWrite/36, use one of the following commands:

> CMD 20, selection no. 1, "Document Option"
> CMD 20, selection no. 4, "Display Current Format"
> CMD 9, selection no. 7, "Change Font"

See the DisplayWrite user's guide for more information on changing typestyles.

Word Processing

When configuring a 5219 address on the host, select a default font ID. The normal value is 11 (or 0B in hex), which is a 10-pitch font.

There are two ways to change fonts for word processing documents: select a typestyle within the word processing program, or use an I-O font change command in the document. The word processing program user's guide describes how to change the typestyles within the program.

Some word processing programs, such as TextManagement/38, do not allow more than one typestyle number per line of text to be chosen. In such cases, use I-O font change commands. (See I-O Command Language on page 6-22 for information on font change commands for word processing documents).

Page Length

The 5219 emulation allows 65 lines at 6 LPI per page for word processing documents and 66 lines at 6 LPI per page for data processing documents. The HP LaserJet printer allows a maximum of 63 lines at 6 LPI. To print 65 lines, the I-O 8251 increases line spacing from 6 lines per inch to about 6.25 lines per inch. This small change is normally not noticeable. A similar small change is made to 8 LPI printing on the 8.5 x 11 letter size paper.

For A4 size paper, the printer prints up to 72 lines at 6 LPI in HP mode (the line spacing may be slightly compressed to fit), or 70 lines at 6 LPI in IBM mode.

Paper Size

Configure the printer setup to the paper size used most. The I-O 8251 only recognizes these paper sizes:

> Letter Paper: 8.5 x 11 in. (215.9 x 279.4 mm)
> Legal Paper: 8.5 x 14 in. (215.9 x 355.6 mm)
> A4 Paper: 8.27 x 11.69 in. (210 x 297 mm)

If any other paper dimensions in the word processing program are chosen, the I-O 8251 ignores them and uses the previous paper size choice. The "No Paper Size" selection uses the paper installed in the tray, regardless of size.

Selecting legal or A4 size paper dimensions on the DisplayWrite/36 "Change Page Format" screen causes the LaserJet display window to flash "Legal Paper." If paper dimensions different from the above are specified, the paper size is unchanged.

For TextManagement/38, the System/38 does not send paper dimensions to the printer. Instead, it sends a forms message for legal paper to the controlling workstation assigned to the printer. To change the paper tray, do the following:

1.   Insert the proper size paper tray, and press the **RESET** button on the printer.

2.   Power the printer off and back on.

3.   Release the print job at the host.

The System/38 uses a "Printer Support Facility" that only sends the margins and other document form specifications to a printer when different from the previous document or when the printer has been turned off. Either way, the LaserJet must be reset when a different paper tray is installed.

The line format screens in DisplayWrite/36 (Command 20) also permit "Justify," which aligns the right margin. "One-Half Justify" causes only one-half as much alignment of the right margin. For best results in using justification, change the zone width to 1 (instead of 6).

ADVANCED FEATURES

Envelope Printing

To print envelopes, specify typestyle number 5, landscape orientation, with the first line of the address on line 30 and a left margin of 55. A trial run with a blank sheet of paper will often help identify an error in positioning the address.

Manual Feed: Select the "Envelope Feed" option in the word processing program's paper feed selections and a paper size of 11" x 11". The printer will flash "Manual Feed" on the front panel display window. Manually feed the envelope into the printer.

Envelope Tray: Select "Envelope Feed" and a paper size of 7.5" or 9.5" (or 22.0 cm). The printer automatically finds the envelope tray (if installed) and prints from the tray.

Envelope Feeder: Select "Envelope Feed" and a paper width of 7.5" or 9.5" (or 22.0 cm). The printer automatically finds the envelope feeder (if installed) and prints from the feeder.

Note: The LaserJet may eject a blank page when printing orientation is changed.

Duplex Printing

Some LaserJet models can print both simplex (single sided) and duplex (double sided). They can print both long edge (landscape) and short edge (portrait) duplex printing.

However, changing the printer's mode through the front panel can be time consuming. Instead, place printing commands on the first line of the document to control simplex, landscape duplex, and portrait duplex printing.

These commands are similar to I-O font change commands as follows:

¬D0 for simplex printing
¬D1 for landscape duplex printing
¬D2 for portrait duplex printing

If they are not on the first line, the commands will not become active until the following page. When the printer receives the printing command, it will do all printing in that mode until another printing command is received. In other words, if the printer is most often in simplex mode and you are printing in duplex mode, be sure to put a simplex command at the end of the document to return the printer to simplex mode. Envelope printing between documents won't change the printer's mode.

On some duplex printing, if the last page is blank on the back side, the information for the last page may remain in the printer until the next printing job is received. To print the last page, take the printer off-line by pressing the ONLINE button, then press the FORM FEED button to print the last page. Put the printer back on-line by pressing the ONLINE button again.

Note: Duplexing is supported in word processing applications on the AS/400, but the AS/400 does not support duplex printing for data processing.

I-O Command Language

The I-O Command Language consists of special codes placed in the document. The I-O 8251 recognizes these codes and passes the proper commands to the printer to control the output. These commands may be used in either data processing or word processing documents.

There are three types of I-O Command Language commands:

> I-O Font Change Commands
> I-O Escape Commands
> I-O Command Pass-Thru

I-O Font Change Commands

To change fonts using I-O font change commands, type the I-O font change command in documents at the place where the font change is to take effect. The command is immediately active in the document and prints the specified font until the next font change command is encountered.

ADVANCED FEATURES

For example, to print the word "saves" into the following sentence in a different font with the ProCollection font cartridge loaded in the printer, here is how the sentence might look on the screen:

Quality ¬Q45 saves ¬Q85 you time and money.

The sentence will then print as follows:

Quality **saves** you time and money.

Note: The host may send the original font code to the printer at the beginning of each page. If this happens, put an I-O font change command at the beginning of each page of the document.

If the I-O font change command changes the pitch, the host may continue to format each line according to the original font ID pitch.

For Text Management/38 and other word processing programs, more than one font ID per line may not be specified.

Font ID's and I-O font change commands for the fonts and font cartridges used by the 3812 and 5219 printer emulations can be found in Appendix D, Typestyle (FGID) Reference Chart.

I-O font change commands are formatted as follows:

3812 Printer Emulation - Font change commands for the 3812 emulation are entered using the following format:

¬Q225 ¬ is a "logical not" (Shift 6), Q indicates a font change, and 225 is the typestyle number (font ID).

5219 Printer Emulation - There are two forms of font change commands available with the 5219 emulation: one selects HP font cartridges and one selects IBM typestyles as shown below.

¬QHB ¬ is a "logical not" (Shift 6), Q indicates a font change, H indicates the HP font cartridge, and B indicates which font in the cartridge.

¬QI225 ¬ is a"logical not" (Shift 6), Q indicates a font change, I indicates an IBM typestyle number, and 225 is the typestyle number (font ID).

I-O Command Pass-Thru™

The Command Pass-Thru feature allows you to access all of the built-in features of your printer, even if these features aren't normally available through the host software. Command Pass-Thru lets you place printer-specific command sequences into the data sent to the printer. The interface recognizes these special sequences and "passes the command through" to the printer. The steps below describe how to use Command Pass-Thru.

1. Find the command for the print feature in the printer's manual.

2. Convert the printer command to hexadecimal.

3. Place the EBCDIC delimiter, as defined by a host download command (refer to Chapter 3, Configuration) in the document at the point you want the feature to take effect. This signals the start of the print feature. Enter the beginning printer command, then enter the delimiter again. You may enter a space between hexadecimal code pairs to make the command easier to read, but do not put spaces between the delimiter and the hexadecimal characters.

4. Move the cursor to the point in the text that you want to end the print feature. Enter the delimiter, followed by the ending printer command, and then the delimiter again, into the document.

For example:

The command **ESC &d0D** begins underlining and **ESC &d@** ends underlining. First convert the start command to the hexadecimal **1B 26 64 30 44** and the ending command to **1B 26 64 40**. And, if the delimiter is the default **&%** (hex 50 6C), then enter the commands as follows:

>   This is an &%1B26643044&%underlined&%1B266440&% word.

to print on the printer as:

>   This is an <u>underlined</u> word.

Only characters from 00 to FF are recognized (alphabetic characters must be in upper case).

ADVANCED FEATURES

Errors in the Command Pass-Thru sequence will cause the I-O 8220 to ignore the command and printing will resume at the point the error occurred.

Although the command is displayed on the screen, it is treated as a command and does not print it. If part of the sequence is printed, you have made an error in entering the codes; check your document and make sure you are using the correct format and EBCDIC hexadecimal characters.

Command Pass-Thru may invalidate horizontal spacing. Avoid sending codes that would move the print position during Command Pass-Thru. Since these commands are not processed, it cannot keep track of the print position changes; this may affect the position of following characters and page layout.

User-Defined Strings

To avoid keying-in frequently used printer commands (which would appear in the document as hex values imbedded in Command Pass-Thru delimiters), you should take advantage of the User-Defined Strings feature.

User-Defined Command Strings

Using Host/PC download command 04, assign the numbers 0 through 9 to frequently used printer command strings.

After a command string has been defined, activate it by typing the delimiter (&% or alternate CPT start delimiter) followed by the string number (U0 through U9) into the document or on the screen. When the document or screen is printed, the interface will recognize the &%U and send the command assigned to the string number to the printer.

For example, if command number U1 is assigned to a command string to turn on shadowed printing (hex codes 1B 28 73 31 32 38 53) for an HP LaserJet 4 printer, then simply enter &%U1 in the document at the point where shadow printing is to begin.

Some commands (such as emphasized (bold) printing) may continue until another string is encountered that returns printing to normal, or for some host systems, until the next page is sent to the printer.

.

The interface self-test prints out a list of command numbers and the command strings assigned to them.

Other Printer Commands

You can also enter commands into your document that allow you to control true LPI and response to host commands. These commands (shown below) are similar to font change commands.

Command	Function
¬E	Sends an ASCII ESC command to the printer
¬TY	Enables true LPI printing
¬TN	Disables true LPI printing
¬I	Ignores all host formatting commands
¬S	Stops ignoring host formatting commands

The ¬E command allows you to send an escape command to the printer to control the printing. For example, **¬E(s3B** would begin bold printing (see your printer's manual for a list of the printer or escape commands).

The printer may compress line spacing to fit 66 lines onto the page. This may be undesirable, such as when using pre-printed forms that must align correctly. In these cases, the ¬TY command prevents the printer from compressing the line spacing.

Use the ¬I and ¬S commands to remove unwanted host commands from a print file. For example, when printing with forms-generating software, the files are recognized by the host as text files and formatted with unwanted carriage returns and line feeds. Placing the ¬I at the end of a line and ¬S at the front of the next line causes the interface to remove the host carriage return and line feed commands and send only the data to the printer.
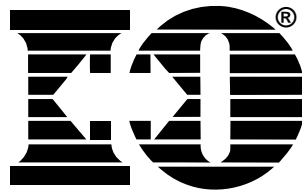
"Products That Work"

This page left intentionally blank.

7 PROBLEM RESOLUTION

The I-O 8251 is designed for easy installation and reliable operation. If you are having problems, first consult this manual and take the following steps:

1. Verify all the installation steps have been completed.

2. List any error messages displayed or unique system operational problems observed (see Error Messages in this chapter).

3. Review the problem resolution guide that follows.

4.   After trying these methods, if you are still unable to resolve the problem, call your I-O Dealer. Have the following information available:

    •   Serial number (label on the card, under the connector)
    •   Software revision level (label on the diskette)
    •   Date of purchase
    •   Model of the printer (if attached)
    •   Type of host system to which the I-O 8251 is attached

Most Common Problems

Emulation adapter not found

1. Change the base memory address in the I-O configuration under Basic Setup. Try C800 then E000. Leave at E000 if it does not work.

    For I-O 8251 half-size card users, refer to page 4-8; for I-O 8251E full-size card users, refer to Appendix G; for I-O 8251ME Micro Channel users, refer to page 7-13.

2. Check for a memory manager in the CONFIG.SYS. The common managers are EMM386.EXE, QEMM, and BLUEMAX.

        If using EMM386 and QEMM, add the statement X=E000-E7FF
        If using BLUEMAX, add the statement RAM=E000-E7FF

PROBLEM RESOLUTION

The addresses that can be used by the I-O emulator cards are:

    C000-C7FF, C800-CFFF
    D000-D7FF, D800-DFFF
    E000-E7FF

For example:

    DEVICE = C:\DOS\EMM386.EXE X=E000-E7FF

3. Disable RAM SHADOWING and CACHE in the CMOS of the PC.

4. Boot from a DOS diskette to eliminate conflicts in the CONFIG.SYS and AUTOEXEC.BAT.

Emulation Adapter not found when using Windows 95/98

1. Make certain that the following lines are in the CONFIG.SYS file in the root directory:

       DEVICE=C:\WINDOWS\HIMEM.SYS
       DEVICE=C:\WINDOWS\EMM386.EXE X=????-????

    The ????-???? represents the memory address you selected for the I-O 8251. The default is D000-D7FF.

2. Restart the PC in MS-DOS mode (or boot to DOS).

3. From the 8251 directory, run the adapter handler **CONNAH.EXE**.

4. From the 8251 directory, run the DOS emulation software **IO8251**. If the emulation software loads properly, go to step 7. If the emulation software does not run properly, continue with step 5.

5. Change the memory address by running **IOCONFIG.EXE** (see Basic Setup Section on page 4-6). For each address you try, be sure to change the EMM386.EXE address in the CONFIG.SYS file. Perform steps 2, 3 and 4 for each address. Once you have found an address that works, go to step 7. If not, continue with step 6.

6. If you have tried all memory addresses without success, power down the PC and reset the I-O 8251 card, or reinstall the card into another ISA slot. Then perform steps 2, 3, 4 and 5. Once you have found an address that works, continue with step 7.

7. Power down the PC and restart in Windows 95/98 mode. Run the I-O emulation software.

    If the card will not run within Windows 95/95, there is a possible IRQ conflict at IRQ 05. Too find out which IRQs are in use, click on START, Settings, Control Panel, System, <u>Device Manager</u> and <u>Properties</u>. This will list the IRQs currently in use. If there is a device at IRQ 05, it will likely need to be moved (see your PC's user guide or contact the manufacturer of the device causing the conflict). **NOTE**: The I-O 8251 card will not show up in the Device Manager as it is considered a "stealth card".

System not available at address X

1. Run IOTXCHK.EXE

    a. **Host polls:** If this is 0000 on all addresses, then the signal from the host is not reaching the I-O card. If only some addresses are not getting host polls, then they are not configured on the host or are varied off.

    b. **Device responses:** Any address there is a response on has a device communicating with the system. If the address has device responses, then there is already a device on that address.

    c. **Device parity:** Any address with a parity error means the device is sending a bad signal to the host. Check the device.

    d. **Cable errors:** Problems with the cable. Check the termination and try a different "Y" connector.

    e. **Emulator errors:** Call I-O Customer Support for assistance.

    f. **Lapsed time:** Run this program for a minimum of 15 seconds.

Printer Definition not found

PROBLEM RESOLUTION

1. The printer device in the I-O configuration, cable address is chosen, but the printer type is undefined. Select the printer type in IOConfig.

Any message containing the numbers 6809

1. Run the program from within the directory where the files are located. Execute PC Support functions from the PCS directory, or execute the I-O emulation from the 8251 directory.

2. Reload the I-O software.

Emulation adapter already resident or
Adapter handler already resident

1. Try to hot key.

2. Reboot the PC.

Any PC Support message

1. From within the PCS directory, type PSCHELP #### (where #### is the message number).

Cannot get 132-column to display

1. The AL value is listed in the video card manual as MODE settings. Check to see if the correct value is in the display adapter setting under "display" in the I-O configuration.

2. Make sure the screen can display 132 columns. Not all screens are 132-column.

3. Only the 3180 and 3197-D emulations are capable of 132-column display.

Emulator adapter does not respond

1. This is usually a mismatch of software. If the card is full-size and was running 4 session software, it must always run 4 session software. If it was running 7 session software, it must always run 7 session software. If the card was running software version 1.XX, it should use version 1.31 software.

2. Call I-O Customer Support for assistance.

General Problems

PC does not power on

Cause: Power cord not plugged in.
Action: Make sure the power cord is plugged into the power outlet and back of the PC.

Cause: Faulty cord or power outlet.
Action: Try another cord or outlet.

Cause: No power connections inside PC.
Action: Check power connections inside the PC that may have been disconnected during installation of the I-O 8251 card.

Graphics characters or blinking characters appear on the screen

Cause: I-O 8251 not seated properly.
Action: Open the PC and check the installation of the I-O 8251.

Cause: Memory address conflict.
Action: Make sure the I-O 8251 memory address is set to a vacant address on the PC.

Cause: Memory address conflict.
Action: On a 386 or 486 computer, configure any memory management to exclude the memory area occupied by the I-O 8251.

Cause: Memory address conflict.
Action: If the 386 or 486 computer uses memory cache, disable caching in the memory area occupied by the I-O 8251. (This is typically done through the BIOS setup.)

Cause: Memory address conflict.
Action: If the 286, 386 or 486 computer uses a 16-bit bus VGA adapter, do one of the following: 1) have address E000

PROBLEM RESOLUTION

available, or 2) configure the VGA adapter for 8-bit bus operation.

Cause: Memory address conflict.
Action: If there are other cards installed in the PC which may be causing a conflict, refer to the user's manual to determine the memory address used by the card.

Cause: Cable address conflict.
Action: Check the host cable address and the I-O 8251 software cable address.

Improper keystrokes or no keystrokes appear on the screen

Cause: Host inhibited.
Action: Host may be inhibited, check the indicator on the status line.

Cause: Wrong keyboard emulation.
Action: Check the keyboard emulation (PC or 5250) in the I-O 8251 configuration.

Cursor appears at the top left corner of the screen when starting emulation

Cause: Invalid cable address.
Action: Check the cable addresses on the host configuration and in the I-O 8251 configuration file.

Cause: Unanswered messages at the host.
Action: Check the host console for unanswered messages.

Cursor appears in the middle of a blank screen

Cause: Memory address conflict
Action: Make sure the I-O 8251 memory address is set to a vacant memory address in the PC.

Cause: Memory address conflict.
Action: On a 386 or 486 computer, configure any memory management to exclude the memory area occupied by the I-O 8251.

Cause: Memory address conflict.
Action: If the 386 or 486 computer uses memory cache, disable caching in the memory area occupied by the I-O 8251. (This is typically done through the BIOS setup.)

Cause: Memory address conflict.
Action: If the 286, 386 or 486 computer uses a 16-bit bus VGA adapter, do one of the following: 1) have address E000 available, or 2) configure the VGA adapter for 8-bit bus operation.

Cause: Memory address conflict.
Action: If there are other cards installed in the PC which may be causing a conflict, refer to the user's manual to determine the memory address used by the card.

Cursor appears at the top right corner of the screen when emulation starting

Cause: Invalid cable address.
Action: Check the cable addresses on the host configuration and in the I-O 8251 configuration.

Cause: Incorrect termination.
Action: If the I-O 8251/PC is the last device on the cable, make sure it is terminated correctly.

Cause: Damaged cabling or connections.
Action: Check cables and connections. Substitute another cable.

"Snow" appears on the screen

Cause: Wrong monitor type.
Action: Select "Color (IBM)" monitor type in the configuration program.

Printer does not work

Cause: Printer not configured or configured incorrectly.
Action: Make sure the printer is configured on the host and in the I- O 8251 configuration.

Cause: Printer not configured or configured incorrectly.
Action: Check that the printer emulation matches the emulation on
the host.

Cause: Printer not configured or configured incorrectly.
Action: Check that if "other" is selected in the configuration
program, the printer is described in the "Printer" option. If
the printer is not described, the printer will not work.

Cause: Invalid cable address.
Action: Check the cable addresses on the host and in the I-O 8251
configuration.

Cause: Printer is off line.
Action: Make sure printer is on line and has paper. Send a print
screen from DOS to see if the printer is communicating
with the PC.

Printer prints improper characters

Cause: Printer or emulator is set to the wrong code page.
Action: Change the code page in the IOConfig (see page 4-20).

Cause: Page width in word processing program is not set wide
enough.
Action: Change to a wider page.

Cause: Page width is too wide.
Action: Select a narrower page.

Cause: Form length not correct in software (maximum length is 66
lines).
Action: Make sure your document length doesn't exceed the
maximum number of lines.

Cause: Page orientation was changed.
Action: The printer may eject the blank page when the page
orientation (portrait or landscape) is changed.

Cause: Form length incorrect in software.
Action: Change form length.

Cause: Incorrect configuration at the host.
Action: Make sure the host configuration matches the printer's.

Cause: Incorrect typestyle number.
Action: Make sure the font ID used is valid. Invalid font IDs are ignored by the printer.

Cause: Wrong font cartridge loaded.
Action: Load the cartridge with the font that corresponds to the font ID.

Cause: Font cartridge damaged or not seated into the printer properly.
Action: If possible try a known good cartridge to determine if cartridge is faulty. Make sure the cartridge is loaded properly.

Cause: Switches host download command or printer front panel set for portrait.
Action: Change switches command or font panel selection to landscape.

Cause: Did not select a rotation in the word processing program.
Action: Select 90 or 270 rotation in the program.

Cause: Did not select a rotation (STO) in the data processing OCl statement.
Action: Add a 90 or 270 orientation instruction to the OCL statement.

Cause: Paper width specified in program is inadequate.
Action: Change paper width to allow the landscape orientation and 198 columns.

Cause: Switches host download command or printer front panel set for landscape.
Action: Change switches command or front panel selection to portrait.

Cause: A mistake may have been made while using Display Write.
Action: Choose "yes" to printer error log on page 3 of the Print Option Screen.

PROBLEM RESOLUTION

Error Messages

The error messages below are generated by the I-O 8251 during configuration, while starting emulation, or during active emulation. The IBM Systems/36, /38, and AS/400 have various error messages to help identify communication problems between the host and the PC or PC printer. The IBM host also has a "help" facility designed for error message recovery. Refer to the IBM Technical Manual for further details.

Address Conflict - The same cable address has been assigned to more than one logical unit session.

Bad File Name - The file name cannot be read. A file extension may have been added when specifying a configuration file name.

Error Creating File - DOS is unable to create a file in the current disk and directory. This is usually caused because the current disk is not available, or the disk is write protected.

Error Deleting File - DOS detects an error while attempting to delete a configuration file. This is usually caused because the current disk is not available, or the disk is write protected.

Error Reading File - The disk file is the wrong size or the data is invalid. If this error occurs while reading a user-created file, the file must be recreated; otherwise, the configuration software should be reinstalled.

Error Writing File - DOS detects an error while trying to write data to the current disk. The current disk may be unavailable, may be write protected, or may be full. If the problem can be corrected, enter "Y" and the writing will be retried; otherwise, enter "N" and writing will be aborted.

File Already Exists - The file name indicated already exists.

File Could Not Be Found - The file name indicated cannot be found. Verify that the current disk and directory are correct. If so, recreate a new configuration file.

File Open Error - DOS detects an error while trying to open the requested file. Verify that the current disk and directory are correct; if so, then the configuration software should be reinstalled.

Invalid Configuration File - The configuration file you are trying to modify is invalid. Verify the correct file is being specified. If so, the file should be deleted and recreated.

Session is Not a Display Session - The logical session specified for the file transfer has not been configured or is configured as a printer.

Loading Emulation Software Error Messages

Configuration File is Invalid - The configuration file specified contains incorrect data. Verify that the correct file is being used. If so, the configuration file must be recreated.

Configuration File Not Found - The configuration file specified cannot be located. Verify that the current disk and directory are correct and the correct configuration file is specified.

Device ID in Configuration File is Invalid - An incorrect device was found while processing the configuration file. Verify the device in the configuration file and, if necessary, recreate it.

Emulation Adaptor Does Not Respond - The emulation adaptor card has detected a problem. Power off the PC and restart emulation. If the problem persists, verify the hardware configuration. If it is correct, contact your I-O dealer.

Emulation Adaptor Diagnostic Error - The emulation adaptor detects an error during power up. Power PC off and restart emulation. If the problem continues, contact your I-O dealer.

Error Reading Keyboard Definition File - The emulation software cannot read the keyboard definition file. Verify that the current disk and directory are correct. If so, verify the three files, KEYBOARD BAS; KEYBOARD CHG; KEYBOARD DEF, exist on the I-O 8251 software diskette.

PROBLEM RESOLUTION

Error Reading Printer Definition File - The emulator software cannot read the printer definition file. Verify that the current disk and directory are correct; if so, check the configuration to ensure that the printer is correctly configured. If the problem persists, reinstall the software.

Keyboard Definition File is Invalid - The data in the keyboard definition file is incorrect. Copy the three files, KEYBOARD.BAS; KEYBOARD.CHG; KEYBOARD.DEF, from the I-O 8251 software.

Keyboard Definition File Not Found - The emulation software is unable to locate the keyboard definition file. If the current disk and directory are correct, copy the three files, KEYBOARD.BAS; KEYBOARD.CHG; KEYBOARD.DEF, from the I-O 8251 software.

Printer Definition File Not Found - The emulation software is unable to locate the printer definition file. Verify the printer configuration and, if correct, reinstall the emulation software.

AS/400 PC Support Error Messages

Handler is already resident - If PC Support is not active, reboot the system.

Host Error Messages

The host system also has a set of error messages to report problems with communication between the host and display station. These four digit error messages consist of codes 0040 through 0054.

See the IBM System/36, /38, or AS/400 Technical Reference Manual for further information on host error messages.

Use the **<Error Reset>** key to clear the error condition and proceed with host communications.

Avoiding Software Conflicts

The I-O 8251 is compatible with most PC application programs. The following information may help you prevent any conflicts.

Microsoft Windows

The I-O 8251 software is Windows-compatible if used under the Windows DOS partition. Included on the I-O 8251 software is a .PIF (Program Information File) for starting emulation from Windows. The .PIF file must used (see Chapter 3, Software Installation).

If a video conflict occurs while using Windows, change the video driver in the Windows setup to VGA.

DOS Shell

Make sure all programs, including the I-O 8251 emulation program, are loaded before DOS Shell is loaded. If the emulation program is loaded from DOS Shell, the next application program may not load properly since the PC's memory is not fully free.

Note: If using MS-DOS 6.0 MemMaker, make sure memory has been excluded for the I-O 8251 card.

43- or 50-Line Mode

The ANSI.SYS screen driver must be installed when using programs with 43- or 50-line mode, such as Quattro Pro. Otherwise, the number of lines may revert to another size when hot keying to a host session and then back to the DOS session.

The screen colors may change during the hot keying for some programs (such as MS Works), but the data will remain unaffected and the screen colors will be restored after the next startup.

HandsOn

When using HandsOn or Novell Menu for file transfer, the PC clock may lose the proper time, but data is unaffected.

PROBLEM RESOLUTION

Setting the Memory Address in the PS/2

Each card installed into a PS/2 uses an area or "address" of the PS/2 upper memory. The I-O 8251ME memory address is set using software. Find the backup copy of the IBM Reference diskette, or if you cannot locate the disk, contact IBM for a replacement.

Take the following steps to set the I-O 8251ME memory address.

1. Insert the Reference Disk Backup into diskette drive A.

2. An IBM logo screen appears. Press **<Enter>** to continue.

3. A main menu screen appears. Select "**Set Configuration**" and press **<Enter>**.

4. Select "**View Configuration**" and press **<Enter>**.

    The configuration screen appears and shows the basic hardware and a description of all cards installed into the PC.

5. Move down to the slots. If any slot is unidentified, the driver for that card is not on the copy of the reference diskette being used. Find the driver and return to the main menu.

    a. Select "Copy/Merge an Option Diskette". Using the disk for the unidentified card as the option diskette.

    b. Follow the instructions on the screen.

6. Return to "View Configuration" and look at the slots. Each card's assigned memory area is shown. An asterisk (*) marks cards with conflicting memory addresses. (Two cards occupying the same memory address could cause operating difficulties.)

7. If conflicting addresses are shown, press the **F5** or **F6** key to change the memory address for one of the conflicting cards. F5 selects the next lower memory address, and F6 selects the next higher memory address. Press **F10** to save the change.

8. Press **F3** until prompted to reboot.

9. Press **<Enter>** and the system will reboot.

Hardware Indicator

If the Led on the back of the card is:

Flashing:	The card has passed internal diagnostics and is ready to connect to the host
Solid:	The card is connected to the host
Off:	The card was not connected to the host. Check cabling, host configuration, and vary on status

This page left intentionally blank.

APPENDIX A

Specifications

General

Host Systems:	IBM System/36, /38 and AS/400
Controller Systems:	IBM 5251-12, 5294, 5394, and 5494 I-O 8294/8394 Series
Display Emulations:	IBM 5251-11, 5291, 5292-1, 3179-1, 3196, 3197C, 3197D, 3180
Printer Emulations:	IBM 5224/5225, 5256, 4210, 4214 (APF and BGU), 3812 (non-IPDS) and 5219 for standard memory usage
Number of sessions:	Four for low memory requirements Seven for standard memory requirements
Minimum configuration:	One display
Maximum configuration:	Seven sessions (supports maximum of five printers)
Memory required:	Standard memory option - 69K + 19K/printer + 32K upper memory block Low memory option - 38K + 19K/printer + 16K upper memory block
	Microprocessor: Motorola 68B09. Application Specific Integrated Circuit © 1987-1993 Sherwood Digital Electronics Corp.
	Programmed Devices © 1987-1993 Sherwood Digital Electronics Corp.
Interface:	9-pin connector with auto-terminating twinax V-connector for connection to host

APPENDIX A

Indicator:	Line sync indicator on rear bracket indicates communication with host
Other features:	132-column screens Record/Playback for repeated keystrokes Supports IBM File Support Utility (FSU), File Transfer Facility (FTF), PC Support/36, /38, AS/400 PC Support, SSI and Andrew's ETU, IBM API Both serial and parallel printers host-addressable

Physical

Board size:	8251EH: 4" x 6" (10.2 x 15.24 cm) 8251ME: 3.25" x 12.25" (8.25 x 31.12 cm)

Environmental

Operating temperature:	0 C to 45 C (32 F to 110 F)
Storage temperature:	-30 to 70 C (-20 F to 160 F)
Relative humidity:	0 to 95% non-condensing
Heat generation:	4.5 W maximum

APPENDIX B

Executable Programs

The following are filenames for executable programs. An executable program is a set of step-by-step instructions given to the computer to complete a task. Some of these files are executed by the user and some are executed by the emulator (called by the emulation program).

Executable by the User

CONNAH.EXE -   The adaptor handler program used with AS/400 PC Support. The startpcs.bat file is modified to start connah. In the startpcs.bat file, the IBM adaptor handler is replaced with connah (IO adaptor handler), and is also replaced with the emulator's memory address (such as D000).

EMRESET.EXE -   Is a utility that when executed will set the I-O 8251 card to its initial power on state. Execute this from a DOS prompt when the I-O emulator card needs to be cleared from the upper memory block.

EMSET.EXE -   A utility program that enables and sets the memory address of the I-O 8251EH card. When using Windows, it is added to the winstart.bat file. To execute file at DOS prompt, type: **emset xxxx** (xxxx = card address, such as D000).

INSTALL.EXE -   An installation program that copies the emulation software memory requirement selected. To execute at the DOS prompt, change to directory where emulation is located and then type: **a:<Enter>**

IO8251.EXE -   The main emulation program. To execute at DOS prompt, change to directory where emulation is located and then type: **io8251**

APPENDIX B

IOCONFIG.EXE -   The configuration program. To execute at DOS prompt, change to directory where emulation is located and then type: **ioconfig**

IOKBCHK.EXE -   A utility program that helps to determine which type of keyboard is being used. To execute at DOS prompt, change to directory where emulation is located and then type: **iokbchk**

IOMEMCHK.EXE -   A program that is used to check the upper memory segments not used by the personal computer (PC). To execute at DOS prompt, change to directory where emulation is located and then type: **iomemchk**

IOTXCHK.EXE -   A utility program that is helpful in determining which addresses are being used on the twinax cable. To execute at DOS prompt, change to directory where emulation is located and then type: **iotxchk**

PCSINST.EXE -   A program that installs the AS/400 PC Support adaptor handler (connah). It must be run after the AS/400 PC Support software has been installed. This will automatically be installed as the software is installed.

SAVEKEYS.EXE -   A program used to save keystrokes recorded during the record/playback feature. Hot key out of emulation. At the DOS prompt, change the directory to where the emulation software is located and type: **savekeys**

WININST.EXE -   A program that adds the emset command to the winstart.bat file. If the winstart.bat does not exist, wininst will create the file. This program is only required for the I-O 8251EH Emulator Card. At the DOS prompt, type: **wininst**

Executable by the Emulator

HP.EXE -   A program that allows 3812 emulation on a laser
                            printer in HP mode.

HP4029.EXE -   A program that allows 3812 emulation on an IBM
                            4029 laser printer in HP mode.

HP5219.EXE -   A program that allows 5219 emulation on a laser
                            printer in the HP mode.

PPDS4029.EXE -   A program that allows 3812 emulation of an IBM
                            4029 laser printer in PPDS mode.

PREM.EXE -   A program that allows 4214 emulation in a dot matrix
                            printer.

Other files include:

*.P12   Printer files using 3812 emulation.
*.P14   Printer files using 4214 emulation.
*.P19   Printer files using 5219 emulation.
*.DAT   File utilized in configuration to make changes for
                            language.
*.CFG   Configuration files.
*.HEX   Emulation adaptor microcode file.
*.ICO   Icon files.
*.PIF   Program Information File used in conjunction with
                            Windows.
*.BAS   Keyboard Base File.
*.CHG   Keyboard Change File.
*.DEF   Keyboard Definition File.
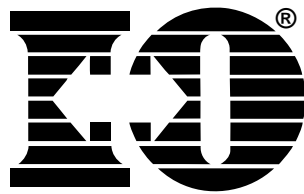
"Products That Work"

This page left intentionally blank.

APPENDIX C

Code Conversion Tables

EBCDIC Table (U.S. National)

For 8D, AD, BC and DA, either of the two characters may print, depending on the printer type or emulation.

For other languages, refer to the IBM 5250 Function Reference Manual, SA21-9247-6.

APPENDIX C

HEX	EBCDIC	HEX	EBCDIC	HEX	EBCDIC
40	space	51	é	62	Â
41	req. space	52	ê	63	Ä
42	â	53	ë	64	Á
43	ä	54	è	65	Á
44	à	55	í	66	Ã
45	á	56	î	67	Å
46	ã	57	ï	68	Ç
47	å	58	ì	69	Ñ
48	ç	59	ß	6A	¦
49	ñ	5A	!	6B	,
4A	¢	5B	$	6C	%
4B	.	5C	*	6D	-
4C	<	5D	)	6E	>
4D	(	5E	;	6F	?
4E	+	5F	¬	70	ø
4F	|	60	-	71	É
50	&	61	/	72	Ê
73	Ë	8E	Þ	A8	y
74	È	8F	±	A9	z
75	Í	90	o	AA	¡
76	Î	91	j	AB	¿
77	Ï	92	k	AC	D

HEX	EBCDIC	HEX	EBCDIC	HEX	EBCDIC
78	Ì	93	l	AD	Ý or
79	`	94	m	AE	Þ
7A	:	95	n	AF	®
7B	#	96	o	B0	^
7C	@	97	p	B1	£
7D	'	98	q	B2	¥
7E	=	99	r	B3	·
7F	"	9A	ª	B4	ƒ
80	Ø	9B	º	B5	§
81	a	9C	æ	B6	¶
82	b	9D	ξ	B7	¼
83	c	9E	Æ	B8	½
84	d	9F	¤	B9	¾
85	e	A0	µ	BA	[
85	f	A1	~	BB	]
86	g	A2	s	BC	- or
87	h	A3	t	BD	¨
88	i	A4	u	BE	´
8A	«	A5	v	BF	–
8B	»	A6	w	C0	{
8C	δ	A7	x	C1	A
C2	B	DC	ü	F7	7

APPENDIX C

HEX	EBCDIC	HEX	EBCDIC	HEX	EBCDIC
C3	C	DD	ù	F7	7
C4	D	DE	ú	F8	8
C5	E	DF	ÿ	F9	9
C6	F	E0	\	FA	³
C7	G	E1	# space	FB	Û
C8	H	E2	S	FC	Ü
C9	I	E3	T	FD	Ù
CA	—	E4	U	FE	Ù
CB	ô	E5	V	FF	
CC	ö	E6	W		
CD	ò	E7	X		
CE	ó	E8	Y		
CF	õ	E9	Z		
D0	}	EA	²		
D1	J	EB	Ô		
D2	K	EC	Ö		
D3	L	ED	Ò		
D4	M	EE	Ó		
D5	N	EF	Õ		
D6	0	F0	0		
D7	P	F1	1		
D8	Q	F2	2		
D9	R	F3	3		
DA	1 or	F4	4		
DB	û	F5	5		

Roman-8 Symbol Set

Includes US ASCII (dec. 1-127) and Roman Extension Symbol Sets

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL (0)	DLE (16)	(32)	0 (48)	@ (64)	P (80)	` (96)	p (112)	(128)	(144)	(160)	‾ (176)	â (192)	Å (208)	Á (224)	þ (240)
1	SOH (1)	DC1 (17)	! (33)	1 (49)	A (65)	Q (81)	a (97)	q (113)	(129)	(145)	À (161)	Ý (177)	ê (193)	î (209)	Ã (225)	þ (241)
2	STX (2)	DC2 (18)	" (34)	2 (50)	B (66)	R (82)	b (98)	r (114)	(130)	(146)	Â (162)	ý (178)	ô (194)	Ø (210)	ã (226)	. (242)
3	ETX (3)	DC3 (19)	# (35)	3 (51)	C (67)	S (83)	c (99)	s (115)	(131)	(147)	È (163)	° (179)	û (195)	Æ (211)	Ð (227)	µ (243)
4	EOT (4)	DC4 (20)	$ (36)	4 (52)	D (68)	T (84)	d (100)	t (116)	(132)	(148)	Ê (164)	Ç (180)	á (196)	å (212)	ð (228)	¶ (244)
5	ENQ (5)	NAK (21)	% (37)	5 (53)	E (69)	U (85)	e (101)	u (117)	(133)	(149)	Ë (165)	ç (181)	é (197)	í (213)	Í (229)	¾ (245)
6	ACK (6)	SYN (22)	& (38)	6 (54)	F (70)	V (86)	f (102)	v (118)	(134)	(150)	Î (166)	Ñ (182)	ó (198)	ø (214)	Ì (230)	‾ (246)
7	BEL (7)	ETB (23)	' (39)	7 (55)	G (71)	W (87)	g (103)	w (119)	(135)	(151)	Ï (167)	ñ (183)	ú (199)	æ (215)	Ó (231)	¼ (247)
8	BS (8)	CAN (24)	((40)	8 (56)	H (72)	X (88)	h (104)	x (120)	(136)	(152)	´ (168)	¡ (184)	à (200)	Ä (216)	Ò (232)	½ (248)
9	HT (9)	EM (25)	) (41)	9 (57)	I (73)	Y (89)	i (105)	y (121)	(137)	(153)	` (169)	¿ (185)	è (201)	ì (217)	Õ (233)	ª (249)
A	LF (10)	SUB (26)	* (42)	: (58)	J (74)	Z (90)	j (106)	z (122)	(138)	(154)	^ (170)	¤ (186)	ò (202)	Ö (218)	õ (234)	º (250)
B	VT (11)	ESC (27)	+ (43)	; (59)	K (75)	[(91)	k (107)	{ (123)	(139)	(155)	¨ (171)	£ (187)	ù (203)	Ü (219)	Š (235)	« (251)
C	FF (12)	FS (28)	, (44)	< (60)	L (76)	\ (92)	l (108)	| (124)	(140)	(156)	~ (172)	¥ (188)	ä (204)	É (220)	š (236)	■ (252)
D	CR (13)	GS (29)	- (45)	= (61)	M (77)	] (93)	m (109)	} (125)	(141)	(157)	Ù (173)	§ (189)	ë (205)	ï (221)	Ú (237)	» (253)
E	SO (14)	RS (30)	. (46)	> (62)	N (78)	^ (94)	n (110)	~ (126)	(142)	(158)	Û (174)	ƒ (190)	ö (206)	ß (222)	Ÿ (238)	± (254)
F	SI (15)	US (31)	/ (47)	? (63)	O (79)	_ (95)	o (111)	▨ (127)	(143)	(159)	£ (175)	¢ (191)	ü (207)	Ô (223)	ÿ (239)	(255)

1st HEX Character

2nd HEX Character

	0	1
0	NUL (0)	DLE (16)
1	SOH (1)	DC1 (17)

Decimal Equivalent

DC1
HEX=11
Decimal=17
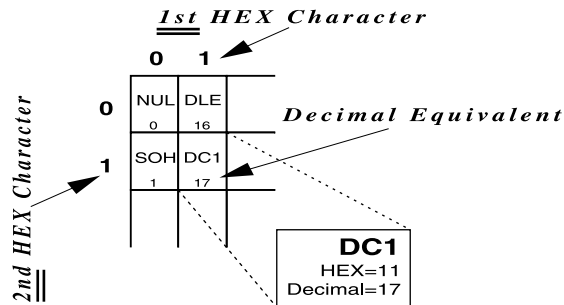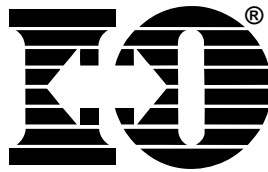
"Products That Work"

This page left intentionally blank.

APPENDIX D

Typestyle (FGID) Reference Chart

The tables on the following pages list the IBM typestyle numbers (font IDs) that the I-O 8251 uses to select fonts internal to the printer and from HP font cartridges. I-O font change commands for each font are also listed.

Typestyle numbers with an asterisk (*) next to them are acceptable IBM font IDs for device configuration and OCL or CL printer commands (in hexadecimal).

I-O font change commands begin with a logical not (¬), which is upper shift 6 on U.S. keyboards. The caret (^) symbol may be substituted in non-U.S. applications.

Proportional fonts cannot be right justified through use of the IBM justify command.

5219 Emulation

The table below lists IBM typestyle numbers and I-O font change commands for HP LaserJet resident fonts (internal to the printer) and HP font cartridges with the 5219 printer emulation.

Note: Typestyle number 86 prints the resident 10 CPI courier font at 12 CPI spacing in portrait (¬ QXM). Typestyle number 85 prints the resident 16 CPI Line Printer font at 12 CPI spacing in landscape (¬ QXN).

APPENDIX D

Hewlett Packard LaserJet Internal Resident Fonts						
Printer Model	**Font**	**Orient**	**Pitch**	**Point Size**	**Type-style No.**	**Font Change Command**
All Models	Courier	P	10	12	*11	¬ QXG
		L	10	12	*5	¬ QXH
Plus & Series II	Line Printer	P	16.66	8.5	*221	¬ QXJ
		L	16.66	8.5	*222	¬QXR
Series II	Line Printer (8LPI)	P	16.66	8.5	*223	¬ QXL
Series II	Line Printer (8LPI)	L	19.0	8.5	*225	¬ QXP
			13.3	8.5	*91	¬ QXK

HP Cartridge Fonts							
				Typestyle No		**Font Change Command**	
Font	**Orient**	**Pitch**	**Point Size**	**Standard**	**Legal**	**Standard**	**Legal**
A Cartridge *Courier 1 (Roman 8 Symbol Set)*							
Courier bold	P	10	12	8	--	¬ QLA	--
	L	10	12	9	--	¬ QLC	--
Courier light	P	10	12	6	--	¬ QLB	--
	L	10	12	7	--	¬ QLC	--
Line Printer light	P	16.66	8.5	*221	--	¬ QLE	--
B Cartridge *TMS Proportional 1 (US ASCII Symbol Set)*							
Helvetica bold	P	Prop.	14.4	175	--	¬ QBA	--
Tms Rmn med	P	Prop.	10	*158	--	¬ QBB	--
Tms Rmn bold	P	Prop.	10	*159	--	¬ QBC	--
Tms Rmn med itl	P	Prop.	10	*162	--	¬ QBD	--
Tms Rmn light	P	Prop.	8	154	--	¬ QBE	--
Line Printer light	L	16.66	8.5	255	--	¬ QBF	--
		19.0	8.5	*225	--	¬ QBG	--

Font	Orient	Pitch	Point Size	Typestyle No.		Font Charge Command	
				Standard	Legal	Standard	Legal
E Cartridge *Letter Gothic (Roman 8, US ASCII Symbol Set)*							
Letter Gothic med	P	12	12	*84	--	¬ QNA	--
	L	12	10	88	--	¬ QND	--
Letter Gothic bold	P	12	10	97	--	¬ QNB	--
	L	12	10	98	--	¬ QNE	--
Letter Gothic med italic	P	12	10	107	--	¬ QNC	--
	L	12	10	108	--	¬ QNF	--
G Cartridge *Legal Elite (US ASCII Symbol Set)*							
Prestige Elite medium	P	12	10	*80	90	¬QGUA	¬QGLA
Prestige Elite bold	P	12	10	82	92	¬QGUC	¬QGLC
Prestige Elite med italic	P	12	10	81	93	¬QGUB	¬QGLB
Prestige Elite medium	P	16.66	7	*222 (252)	227 (253)	¬QGUD	¬QGLD
	L	16.66	7	261 (250)	228 (254)	¬QGUE	¬QGLE
		19.0	7	214	--	¬QGUF	--
Line Draw Set	P	12	12	110	110	¬QGUB ¬QGF	--

APPENDIX D

Font	Orient	Pitch	Point Size	Typestyle No.		Font Charge Command	
				Standard	Legal	Standard	Legal
H Cartridge *Legal Courier (US ASCII Symbol Set)*							
Courier medium	P	10	12	*20	30	¬ QHUA	¬QHLA
Courier bold	P	10	12	22	32	¬ QHUC	¬QHLC
Courier med italic	P	10	12	21	31	¬ QHUB	¬QHLB
Prestige Elite medium	P	16.66	7	*222 (252)	227 (253)	¬ QHUD	¬QHLD
	L	16.66	7	216 (250)	228 (254)	¬ QHUE	¬QHLE
		19.0	7	214	--	¬ QHUF	--
Line Draw Set	P	10	12	40	--	¬ QHF	--
L Cartridge *Courier P&L (Roman 8 Symbol Set)*							
Courier bold	P	10	12	8	--	¬ QLA	--
	L	10	12	9	--	¬ QLC	--
Courier medium italic	P	10	12	6	--	¬ QLB	--
	L	10	12	7	--	¬ QLD	--

Font	Orient	Pitch	Point Size	Typestyle No		Font Change Command	
				Standard	Legal	Standard	Legal
Line Printer medium	P	16.66	8.5	*221	--	¬ QLE	--
	L	16.66	8.5	255	--	¬ QLF	--
		19.0	8.5	*225	--	¬ QLG	--
M Cartridge *Prestige Elite (Roman 8 Symbol Set)*							
Prestige Elite medium	P	12	10	*87	--	¬QMA	--
	L	12	10	88	--	¬QMD	--
Prestige Elite bold	P	12	10	97	--	¬QMB	--
	L	12	10	98	--	¬QME	--
Prestige Elite med italic	P	12	10	107	--	¬QMC	--
	L	12	10	108	--	¬QMF	--
N Cartridge *Letter Gothic P&L (Roman 8 Symbol Set)*							
Letter Gothic medium	P	12	12	*84	--	¬ QNA	--
	L	12	12	*85	--	¬ QND	--
Letter Gothic bold	P	12	12	94	--	¬ QNB	--
	L	12	12	95	--	¬ QNE	--
Letter Gothic medium italic	P	12	12	104	--	¬ QNC	--
	L	12	12	105	--	¬ QNF	--
Q Cartridge *Memo 1 (Roman 8 Symbol Set)*							
Courier bold	P	10	12	8	--	¬ QQA	--
	L	10	12	9	--	¬ QQE	--
Courier medium italic	P	10	12	6	--	¬ QQB	--
	L	10	12	7	--	¬ QQF	--

APPENDIX D

Font	Orient	Pitch	Point Size	Typestyle No.		Font Change Command	
				Standard	Legal	Standard	Legal
Letter Gothic med	P	12	12	*84	--	¬ QQC	--
Letter Gothic bold	P	12	12	94	--	¬ QQD	--
R Cartridge *Presentations 1*							
Presentation bold	P	6.5	18	18 (240)	28	(242)	¬ QRUA
	L	6.5	18	19 (241)	29 (243)	¬ QRUD	¬ QRLD
Presentation bold	P	8.1	16	16 (260)	26	(262)	¬ QRUB
	L	8.1	14	17 (261)	27 (263)	¬ QRUE	¬ QRLE
Presentation bold	P	10	14	14	24	¬ QRUC	¬ QRLC
	L	10	14	15	25	¬ QRUF	¬ QRLF
Letter Gothic medium	P	10	14	*12	34	¬ QRUG	¬ QRLG
	L	10	14	*13	35	¬ QRUH	¬
PCLine bold	P	10	14	36	--	¬ QRJ	--
	L	10	14	37	--	¬ QRK	--
Line Draw	P	10	14	38	--	¬ QRM	--
	L	10	14	39	--	¬ QRN	--

Note: Numbers in parentheses are alternatives that move closely match the IBM CPI spacing of the font.

3812 Emulation

The following charts lists the IBM typestyle numbers (font IDs) and I-O font change commands used to change fonts within a document with the 3812 printer emulation. For information on changing fonts, refer to Chapter 4.

APPENDIX D

Typeface	Symbol	Orient	Pitch	Point	Type-style No.
Line Printer	R-8/850	P/L	13.33	8.5	204
Line Printer	R-8/850	P/L	15	8.5	223
Line Printer	R-8/850	P/L	17.1	8.5	254
Line Printer	R-8/850	P/L	19	8.5	281
Courier	R-8/850	P/L	10	12	11
Courier Bold	R-8/850	P/L	10	12	46
Courier Italic	R-8/850	P/L	10	12	18
Courier	R-8/850	P/L	12	10	85
Courier Bold	R-8/850	P/L	12	10	88
Courier Italic	R-8/850	P/L	12	10	89
Letter Gothic	R-8/850	P/L	12	12	87
CG Times	R-8/850	P/L	Prop.	6	4605
	R-8/850	P/L	Prop.	8	4606
	R-8/850	P/L	Prop.	10	4607
	R-8/850	P/L	Prop.	12	4608
	R-8/850	P/L	Prop.	14	4609
	R-8/850	P/L	Prop.	18	4611
	R-8/850	P/L	Prop.	24	4614
	R-8/850	P/L	Prop.	30	4617
CG Times Bold	R-8/850	P/L	Prop.	6	4625
	R-8/850	P/L	Prop.	8	4626
	R-8/850	P/L	Prop.	10	4627
	R-8/850	P/L	Prop.	12	4628
	R-8/850	P/L	Prop.	14	4629
	R-8/850	P/L	Prop.	18	4631
	R-8/850	P/L	Prop.	24	4634
	R-8/850	P/L	Prop.	30	4637

Typeface	Symbol	Orient	Pitch	Point	Type-style No.
CG Times Italic	R-8/850	P/L	Prop.	6	4645
	R-8/850	P/L	Prop.	8	4646
	R-8/850	P/L	Prop.	10	4647
	R-8/850	P/L	Prop.	12	4648
	R-8/850	P/L	Prop.	14	4649
	R-8/850	P/L	Prop.	18	4651
	R-8/850	P/L	Prop.	24	4654
	R-8/850	P/L	Prop.	30	4657
CG Times Bold Italic	R-8/850	P/L	Prop.	6	4665
	R-8/850	P/L	Prop.	8	4666
	R-8/850	P/L	Prop.	10	4667
	R-8/850	P/L	Prop.	12	4668
	R-8/850	P/L	Prop.	14	4669
	R-8/850	P/L	Prop.	18	4671
	R-8/850	P/L	Prop.	24	4674
	R-8/850	P/L	Prop.	30	4677
Univers Medium	R-8/850	P/L	Prop.	6	4805
	R-8/850	P/L	Prop.	8	4806
	R-8/850	P/L	Prop.	10	4807
	R-8/850	P/L	Prop.	12	4808
	R-8/850	P/L	Prop.	14	4809
	R-8/850	P/L	Prop.	18	4811
	R-8/850	P/L	Prop.	24	4814
	R-8/850	P/L	Prop.	30	4817
Univers Med Italic	R-8/850	P/L	Prop.	6	4825
	R-8/850	P/L	Prop.	8	4826

APPENDIX D

Typeface	Symbol	Orient	Pitch	Point	24Type-style No.
(Continued)	R-8/850	P/L	Prop.	10	4827
	R-8/850	P/L	Prop.	12	4828
	R-8/850	P/L	Prop.	14	4829
	R-8/850	P/L	Prop.	18	4831
	R-8/850	P/L	Prop.	24	4834
	R-8/850	P/L	Prop.	30	4837
Univers Med Cond.	R-8/850	P/L	Prop.	6	4845
	R-8/850	P/L	Prop.	8	4846
	R-8/850	P/L	Prop.	10	4847
	R-8/850	P/L	Prop.	12	4848
	R-8/850	P/L	Prop.	14	4849
	R-8/850	P/L	Prop.	18	4851
	R-8/850	P/L	Prop.	24	4854
	R-8/850	P/L	Prop.	30	4857
Univers Med Cond. Italic	R-8/850	P/L	Prop	6	4865
	R-8/850	P/L	Prop.	8	4866
	R-8/850	P/L	Prop.	10	4867
	R-8/850	P/L	Prop.	12	4868
	R-8/850	P/L	Prop.	14	4869
	R-8/850	P/L	Prop.	18	4871
	R-8/850	P/L	Prop.	24	4876
	R-8/850	P/L	Prop.	30	4877
Univers Bold	R-8/850	P/L	Prop.	6	4905
	R-8/850	P/L	Prop.	8	4906
	R-8/850	P/L	Prop.	10	4907
	R-8/850	P/L	Prop.	12	4908
	R-8/850	P/L	Prop.	14	4909
	R-8/850	P/L	Prop.	18	4911

Typeface	Symbol	Orient	Pitch	Point	24Type-style No.
(Continued)	R-8/850	P/L	Prop.	24	4014
	R-8/850	P/L	Prop.	30	4917
Univers Bold Italic	R-8/850	P/L	Prop.	6	4925
	R-8/850	P/L	Prop.	8	4926
	R-8/850	P/L	Prop.	10	4927
	R-8/850	P/L	Prop.	12	4928
	R-8/850	P/L	Prop.	14	4929
	R-8/850	P/L	Prop.	18	4931
	R-8/850	P/L	Prop.	24	4934
	R-8/850	P/L	Prop.	30	4937
Univers Bold Cond.	R-8/850	P/L	Prop.	6	4945
	R-8/850	P/L	Prop.	8	4946
	R-8/850	P/L	Prop.	10	4948
	R-8/850	P/L	Prop.	12	4949
	R-8/850	P/L	Prop	18	4951
	R-8/850	P/L	Prop.	24	4954
	R-8/850	P/L	Prop.	30	4957
Univers Bold Cond. Italic	R-8/850	P/L	Prop.	6	4965
	R-8/850	P/L	Prop.	8	4966
	R-8/850	P/L	Prop.	10	4967
	R-8/850	P/L	Prop.	12	4968
	R-8/850	P/L	Prop.	14	4969
	R-8/850	P/L	Prop.	18	4971
	R-8/850	P/L	Prop.	24	4974
	R-8/850	P/L	Prop.	30	4977
ITC Zapf Dingbats	10L	P/L	Prop.	6	4985
	10L	P/L	Prop.	8	4986
	10L	P/L	Prop.	10	4987

Typeface	Symbol	Orient	Pitch	Point	24Type-style No.
(Continued)	R-8/850	P/L	Prop.	12	4988
	R-8/850	P/L	Prop.	14	4989
	R-8/850	P/L	Prop.	18	4991
	R-8/850	P/L	Prop.	24	4994
	R-8/850	P/L	Prop.	30	4997

Optional Fonts as originally found in ProCollection Cartridge					
Line Printer	ASCII	P/L	17.1	8.5	253
Courier Bold	ASCII	P/L	10	12	45
Courier Italic	ASCII	P/L	10	12	17
Courier	ASCII	P/L	12	10	84
Courier Bold	ASCII	P/L	12	10	108
Courier Italic	ASCII	P/L	12	10	92
Courier	Legal	P	10	12	51
Courier Bold	Legal	P	10	12	52
Courier Italic	Legal	P	10	10	53
Courier	Legal	P	12	10	93
Courier Bold	Legal	P	12	10	94
Courier Italic	Legal	P	12	10	95
Prestige Elite	ASCII	P/L	15	7	220
Prestige Elite	ASCII	P/L	12	10	83
Prestige Elite Bold	ASCII	P/L	12	10	113
Prestige Elite Italic	ASCII	P/L	12	10	114
Prestige Elite	Legal	P	15	7	219
Prestige Elite	Legal	P	12	10	97
Prestige Elite Bold	Legal	P	12	10	98
Prestige Elite Italic	Legal	P	12	10	99
Letter Gothic	ASCII	P/L	27	3.6	291
Letter Gothic	ASCII	P/L	19	6	281
Letter Gothic	ASCII	P/L	17.1	9.5	257
Letter Gothic	ASCII	P/L	12	12	66
Letter Gothic Bold	ASCII	P/L	12	12	69
Letter Gothic Italic	ASCII	P/L	12	12	68
Times Roman	ASCII	P	Prop.	8	163

APPENDIX D

Typeface	Symbol	Orient	Pitch	Point	Type-style No.
Times Roman	ASCII	P	Prop.	10	164
Times Roman Bold	ASCII	P	Prop.	10	165
Times Roman Italic	ASCII	P	Prop.	10	166
Times Roman	ASCII	P	Prop.	12	167
Times Roman Bold	ASCII	P	Prop.	12	168
Times Roman Italic	ASCII	P	Prop.	12	169
Times Roman	Legal	P	Prop.	8	173
Times Roman	Legal	P	Prop.	10	174
Times Roman Bold	Legal	P	Prop.	10	175
Times Roman Italic	Legal	P	Prop.	10	176
Times Roman	Legal	P	Prop.	12	177
Times Roman Bold	Legal	P	Prop.	12	178
Times Roman Italic	Legal	P	Prop.	12	179
Helvetica	ASCII	P	Prop.	8	183
Helvetica	ASCII	P	Prop.	10	184
Helvetica Bold	ASCII	P	Prop.	10	185
Helvetica Italic	ASCII	P	Prop.	10	186
Helvetica	ASCII	P	Prop.	12	187
Helvetic Bold	ASCII	P	Prop.	12	188
Helvetica Italic	ASCII	P	Prop.	12	189
Helvetica Bold	ASCII	P	Prop.	14	190
Helvetica Bold	Legal	P	Prop.	14	191
Optional Fonts as originally found in WordPerfect Cartridge					
CG Times	DskTop	P	Prop.	6	4685
CG Times	DskTop	P	Prop.	8	4686

Typeface	Symbol	Orient	Pitch	Point	Type-style No.
CG Times Bold	DskTop	P	Prop.	8	4706
CG Times Italic	DskTop	P	Prop.	8	4814
CG Times	DskTop	P	Prop.	10	4687
CG Times Bold	DskTop	P	Prop	10	4707
CG Times Italic	DskTop	P	Prop.	10	4815
CG Times	DskTop	P	Prop.	12	4688
CG Times Bold	DskTop	P	Prop.	12	4708
CG Times Italic	DskTop	P	Prop.	12	4816
CG Times	DskTop	P	Prop.	14	4689
CG Times Bold	DskTop	P	Prop.	14	4709
CG Times Italic	DskTop	P	Prop.	14	4817
CG Times Bold	DskTop	P	Prop.	18	4711
CG Times Bold	DskTop	P	Prop.	24	4714
Univers	DskTop	P	Prop.	14	4789
Univers	DskTop	P	Prop.	18	4791
Univers	DskTop	P	Prop.	24	4794
Optional Fonts as originally found in Microsoft Cartridge					
Helvetica	R-8	P	Prop.	8	34102
Helvetica	R-8	P	Prop.	10	34103
Helvetica Bold	R-8	P	Prop.	10	34123
Helvetica Italic	R-8	P	Prop.	10	34231
Helvetica	R-8	P	Prop.	12	34104
Helvetic Bold	R-8	P	Prop.	12	34124
Helvetica Italic	R-8	P	Prop.	12	34232
Helvetica Bold	R-8	P	Prop.	14	34125

APPENDIX D

Typeface	Symbol	Orient	Pitch	Point	Type-syle No.
TmsRmn	R-8	P	Prop.	8	5686
TmsRmn	R-8	P	Prop.	10	5687
TmsRmn Bold	R-8	P	Prop.	10	5707
TmsRmn Italic	R-8	P	Prop.	10	5815
Times Roman	R-8	P	Prop.	12	5688
Times Roman Bold	R-8	P	Prop.	12	5708
Times Roman Italic	R-8	P	Prop.	12	5816
Times Roman Bold	R-8	P	Prop.	14	5709
Line Printer	R-8	P	Prop.	835	223
Optional Fonts as originally found inPolished Worksheet Cartridge					
Prestige Elite	R-8/850	P/L	15	7	221
Prestige Elite	R-8/850	P/L	12	10	86
Prestige Elite Bold	R-8/850	P/L	12	10	111
Prestige Elite Italic	R-8/850	P/L	12	10	112
Prestige Elite	Legal	P/L	15	7	219
Prestige Elite	Legal	P/L	12	10	97
Prestige Elite Bold	Legal	P/L	12	10	98
Prestige Elite Italic	Legal	P/L	12	10	99
Letter Gothic	R-8/850	P/L	27	3.6	290
Letter Gothic	R-8/850	P/L	12	12	87
Letter Gothic Bold	R-8/850	P/L	12	12	110
Letter Gothic Italic	Legal	P/L	12	12	109
Letter Gothic	Legal	P/L	27	3.6	292
Letter Gothic	Legal	P/L	12	12	90
Letter Gothic Bold	Legal	P/L	12	12	107
Letter Gothic Italic	Legal	P/L	12	12	106

Typeface	Symbol	Orient	Pitch	Point	Type-style No.
Presentation Bold	ASCII	P/L	8.1	16	434
Presentation Bold	Legal	P/L	8.1	16	431
Optional Fonts as originally found in Persuasive Presentations Cartridge					
Letter Gothic	ASCII	P/L	10	14	39
Letter Gothic	Legal	P/L	10	14	38
Presentation Bold	ASCII	P/L	10	14	6
Presentation Bold	Legal	P/L	10	14	7
Presentation bold	ASCII	P/L	8.1	16	434
Presentation bold	Legal	P/L	8.1	16	431
Presentation bold	ASCII	P/L	6.5	18	435
Presentation bold	Legal	P/L	6.5	18	432
Presentation bold	ASCII	P/L	5.7	24	436
Presentation bold	Legal	P/L	5.7	24	433
Helv Outline	ASCII	P/L	Prop.	24	34115
Helv Outline	Legal	P/L	Prop.	24	34116
Serifa	ASCII	P/L	Prop.	24	34215
Serifa	Legal	P/L	Prop.	24	34216
Line Draw	LinDrw	P/L	10	14	31
PC Line bold	PCLin	P/L	10	14	32
Optional Fonts as originally found in Forms, Etc. Cartridge					
Univers	R-8/850	P/L	Prop.	6	33101
Univers	R-8/850	P/L	Prop.	8	33102
Univers bold	R-8/850	P/L	Prop.	8	33122
Univers bold	R-8/850	P/L	Prop.	10	33123
Univers bold	R-8/850	P/L	Prop.	12	33124
Univers bold	R-8/850	P/L	Prop.	14	33125
Helv Cond. Black bold	TXNum	P/L	Prop.	24	34128
OCR-A	OCR-A	P	10	12	19

APPENDIX D

Typeface	Symbol	Orient	Pitch	Point	Type-style No.
Tax Line Draw	Taxlin Drw	P/L	10	12	30
Optional Fonts as originally found in Bar Codes & More Cartridge					
Letter Gothic	R-8	P/L	15	9.5	230
Letter Gothic	R-8	P/L	112	12	87
Letter Gothic	R-8	P/L	10	14	40
OCR-A	OCR-A	P	10	12	19
OCR-B	OCR-B	P	10	12	3
Code 3 of 9	3 of 9	P	8.1	12	60
Code 3 of 9	3 of 9	P	4.6	12	240
EAN/UPC 10 Mil	UPC	P	Prop.	12	170
EAN/UPC 13 Mil bold	UPC	P	Prop.	12	171
USPS Zip	ZIP	P/L	Prop.	12	172
Line Draw	LinDrw	P/L	10	12	33
Optional Fonts as originally found in Text Equations Cartridge					
Prestige Elite	R-8	P	15	7	221
Prestige Elite	R-8	P	17.1	7	256
Prestige Elite	R-8	P	12	10	86
Prestige Elite bold	R-8	P	12	10	111
Prestige Elite italic	R-8	P	12	10	112
CG Times	R-8	P	Prop.	8	157
CG Times	R-8	P	Prop.	10	158
CG Times bold	R-8	P	Prop.	10	159
CG Times italic	R-8	P	Prop.	10	155
Optional Fonts as originally found in Global Text Cartridge					
CG Century Schoolbook	R-8/850	P/L	Prop.	8	16950
CG Century Schoolbook	R-8/850	P/L	Prop.	10	16951
CG Century Schlbk Bold	R-8	P/L	Prop.	10	16971
CG Century Schlbk Italic	R-8	P/L	Prop.	10	17079

Typeface	Symbol	Orient.	Pitch	Point	Type-style No.
CG Triumvirate	R-8	P/L	Prop.	10	33335
CG Triumvirate Bold	R-8	P/L	Prop.	14	33357
Optional Fonts as originally found in Pretty Faces Cartridge					
Microstyle	ASCII	P	Prop.	18	5910
Microstyle Bold	ASCII	P	Prop.	36	5920
Hobo Medium	ASCII	P	Prop.	30	5930
Hobo Medium	ASCII	P	Prop.	14	5940
Thunderbird	ASCII	P	Prop.	54	5950
Signet Roundhand	ASCII	P	Prop.	18	5960
Signet Roundhand	ASCII	P	Prop.	14	5970
ITC Dingbats	ITC	P	Prop.	36	5980
ITC Dingbats	ITC	P	Prop.	18	5990

PPDS 4029 Mode Fonts				
Font	Pitch	Point Size	Typestyle No.	Font Change Command
Courier outline	Prop.	6	416	416
	Prop.	8	426	426
	Prop.	10	436	436
	Prop.	12	446	446
	Prop.	14	456	456
	Prop.	18	466	466
	Prop.	24	476	476
	Prop.	30	486	486
Courier bold outline	Prop.	6	420	420
	Prop.	8	430	430
	Prop.	10	440	440
	Prop.	12	450	450
	Prop.	14	460	460
	Prop.	18	470	470
	Prop.	24	480	480
	Prop.	30	490	490
Courier italic outline	Prop.	6	424	424
	Prop.	8	434	434
	Prop.	10	444	444
	Prop.	12	454	454
	Prop.	14	464	464
	Prop.	18	474	474
	Prop.	24	484	484
	Prop.	30	494	494
Courier bold italic outline	Prop.	6	428	428
	Prop.	8	438	438
	Prop.	10	448	448
	Prop.	12	458	458
	Prop.	14	468	468
	Prop.	18	478	478
	Prop.	24	488	488
	Prop.	30	498	498
Helvetica outline	Prop.	6	2304	2304
	Prop.	8	2314	2314
	Prop.	10	2324	2324
	Prop.	12	2334	2334
	Prop.	14	2344	2344
	Prop.	18	2354	2354
	Prop.	24	2364	2364
	Prop.	30	2374	2374

Helvetica bold outline	Prop.	6	2305	2305
	Prop.	8	2315	2315
	Prop.	10	2325	2325
	Prop.	12	2335	2335
	Prop.	14	2345	2345
	Prop.	18	2355	2355
	Prop.	24	2365	2365
	Prop.	30	2375	2375
Helvetica italic outline	Prop.	6	2306	2306
	Prop.	8	2316	2316
	Prop.	10	2326	2326
	Prop.	12	2336	2336
	Prop.	14	2346	2346
	Prop.	18	2356	2356
	Prop.	24	2366	2366
	Prop.	30	2376	2376
Helvetica bold italic outline	Prop.	2307	2307	2307
	Prop.	8	2317	2317
	Prop.	10	2327	2327
	Prop.	12	2337	2337
	Prop.	14	2347	2347
	Prop.	18	2357	2357
	Prop.	24	2367	2367
	Prop.	30	2377	2377
Times New Roman outline	Prop.	6	2308	2308
	Prop.	8	2318	2318
	Prop.	10	2328	2328
	Prop.	12	2338	2338
	Prop.	14	2348	2348
	Prop.	18	2358	2358
	Prop.	24	2368	2368
	Prop.	30	2378	2378
Times New Roman bold outline	Prop.	6	2309	2309
	Prop.	8	2319	2319
	Prop.	10	2329	2329
	Prop.	12	2339	2339
	Prop.	14	2349	2349
	Prop.	18	2359	2359
	Prop.	24	2369	2369
	Prop.	30	2379	2379

Times New Rmn italic outline	Prop.	6	2310	2310
	Prop.	8	2320	2320
	Prop.	10	2330	2330
	Prop.	12	2340	2340
	Prop.	14	2350	2350
	Prop.	18	2360	2360
	Prop.	24	2370	2370
	Prop.	30	380	2380
Times New Roman bold italic outline	Prop.	6	2311	2311
	Prop.	8	2321	2321
	Prop.	10	2331	2331
	Prop.	12	2341	2341
	Prop.	14	2351	2351
	Prop.	18	2361	2361
	Prop.	24	2371	2371
	Prop.	30	2381	2381
Prestige Elite symbol	12	10	89	89
Letter Gothic Cartridge 1255083				
Letter Gothic	10	14	36	36
Letter Gothic	12	12	87*	87
Letter Gothic bold	12	12	110	110
Letter Gothic italic	12	12	109	109
Letter Gothic symbol	12	12	88	88
Delegate Cartridge 1255804				
Delegate	10	12	2	2
Adjutant	12	10	95	95
Modern	Prop.	12	158*	158
Essay	Prop.	12	160*	160
Essay italic	Prop.	12	162*	162
Script/OCR Cartridge				
Script	12	10	84*	84
Olde World	12	10	96	96
Title	Prop.	12	157	157
APL	12	10	76	76
OCR A	10	12	19	19
OCR B	10	12	3	3
APT/TN	12	10	77	77
Orator Cartridge 1255806				
Orator bold	8.1	16	434	434
Orator bold	6.5	18	435	435

Orator	10	14	5*	5
Compressed Cartridge 1255807				
Prestige	15	9	221	221
Letter Gothic	15	9	222*	222
Letter Gothic	17.1	8.5	255	255
Letter Gothic	20	7.5	281	281
Letter Gothic	25	6	85	285
Light italic	12	10	91*	91
Press Roman Cartridge 1255808				
Press Roman	Prop.	10	186	186
Press Roman bold	Prop.	10	187	187
Press Roman italic	Prop.	10	188	188
Press Roman bold italic	Prop.	10	189	189
Press Roman symbol	12	10	185	185
Foundry Cartridge 1255809				
Foundry	Prop.	10	190	190
Foundry bold	Prop.	10	191	191
Foundry italic	Prop.	10	194	194
Foundry italic bold	Prop.	10	195	195
Foundry symbol	Prop.	10	192	192
Testimonial Cartridge 1255820				
Testimonial	Prop.	12	5943	5943
Testimonial	Prop.	14	5944	5944
Testimonial	Prop.	18	5945	5945
Engravers' Old English Cartridge 1255821				
Engravers' Old English	Prop.	12	37431	37431
Engravers' Old English	Prop.	14	37432	37432
Engravers' Old English	Prop.	18	37433	37433
Times Roman Cartridge 1255822				
Times Roman	Prop.	12	5688	5688
Times Roman bold	Prop.	14	5709	5709
Times Roman bold	Prop.	18	5710	5710
Times Roman Cartridge 1255823				
Times Roman	Prop.	6	5685	5685
Times Roman	Prop.	8	5686	5686
Times Roman bold italic	Prop.	10	5835	5835
Times Roman	Prop.	10	5687	5687
Times Roman bold	Prop.	10	5707	5707
Times Roman italic	Prop.	10	5815	5815
Combo (Data Stream 1) Cartridge 1255824				
Prestige Elite	12	10	86*	86

Helvetica	Prop.	14	34105	34105
Orator	10	14	5*	5
OCR A	10	12	19	19
OCR B	10	12	3	3
Helvetica Cartridge 1255825				
Helvetica	Prop.	12	34104	34104
Helvetica bold	Prop.	14	34125	34125
Helvetica bold	Prop.	18	34126	34126
Helvetica Cartridge 1255826				
Helvetica	Prop.	6	34101	34101
Helvetica	Prop.	8	34102	34102
Helvetica bold italic	Prop.	10	34251	34251
Helvetica	Prop.	10	34103	34103
Helvetica bold	Prop.	10	34123	34123
Helvetica italic	Prop.	10	34231	34231
Cursive Cartridge 1255827				
Cursive	Prop.	12	41783	41783
Cursive	Prop.	14	41803	41803
Cursive	Prop.	18	41804	41804
Palatino Cartridge 1255828				
Palatino	Prop.	12	6200	6200
Palatino	Prop.	4	6219	6219
Palatino	Prop.	18	6220	6220
Palatino Cartridge 1255829				
Palatino	Prop.	6	6197	6197
Palatino	Prop.	8	6198	6198
Palatino	Prop.	10	6199	6199
Palatino bold	Prop.	10	6218	6218
Palatino italic	Prop.	10	6327	6327
Optima Cartridge 1255830				
Optima	Prop.	12	33336	33336
Optima bold	Prop.	14	33356	33356
Optima bold	Prop.	18	33357	33357
Optima Cartridge 1255831				
Optima	Prop.	6	33333	33333
Optima	Prop.	8	33334	33334
Optima	Prop.	10	33335	33335
Optima bold	Prop.	10	33355	33355
Optima italic	Prop.	10	33463	33463
Optima bold italic	Prop.	10	33483	33483
Century Schoolbook Cartridge 1255832				
Century Schoolbook	Prop.	12	16952	16952
Century Schoolbook bold	Prop.	14	16972	16972
Century Schoolbook bold	Prop.	18	16973	16973

Century Schoolbook Cartridge 1255833				
Century Schoolbook	Prop.	6	16949	16949
Century Schoolbook	Prop.	8	16950	16950
Century Schoolbook	Prop.	10	16951	16951
Century Schoolbook bold	Prop.	10	16971	16971
Century Schoolbook italic	Prop.	10	17079	17079
Century Schlbook bold italic	Prop.	6	17099	17099
Goudy Old Style Cartridge 1255834				
Goudy Old Style	Prop.	12	4920	4920
Goudy Old Style bold	Prop.	14	4940	4940
Goudy Old Style bold	Prop.	18	4941	4941
Goudy Old Style Cartridge 1255835				
Goudy Old Style	Prop.	6	4917	4917
Goudy Old Style	Prop.	8	4918	4918
Goudy Old Style	Prop.	10	4919	4919
Goudy Old Style bold	Prop.	10	4939	4939
Goudy Old Style italic	Prop.	10	5047	5047
Goudy Old Style bold italic	Prop.	10	5067	5067
Baskerville Cartridge 1255836				
Baskerville	Prop.	12	8504	8504
Baskerville bold	Prop.	14	8524	8524
Baskerville bold	Prop.	18	8525	8525
Baskerville Cartridge 12558237				
Baskerville	Prop.	6	8501	8501
Baskerville	Prop.	8	8502	8502
Baskerville	Prop.	10	8503	8503
Baskerville bold	Prop.	10	8523	8523
Baskerville italic	Prop.	10	8631	8631
Baskerville bold italic	Prop.	10	8651	8651
Futura Cartridge 1255838				
Futura Book	Prop.	12	33592	33592
Futura Heavy	Prop.	14	33602	33602
Futura Heavy	Prop.	18	33603	33603
Futura Cartridge 1255839				
Futura Book	Prop.	6	33589	33589
Futura Book	Prop.	8	33590	33590
Futura Book	Prop.	10	33591	33591
Futura Heavy	Prop.	10	33601	33601
Futura Book italic	Prop.	10	33719	33719
Futura Heavy italic	Prop.	10	33729	33729

APPENDIX D

Bar None Cartridge				
Code 3 of 9		4.6	21	21
		8.1	22	22
EAN/UPC		13 mil	23	23
		10 mil	24	4
USPS Zip			26	26
Line Draw			312	312

HP4029 Mode Fonts				
Font	**Pitch**	**Point Size**	**Typestyle No.**	**Font Change Command**
Resident Fonts				
Courier	10	12	11*	11
Courier bold	10	12	46	46
Courier	15	8.5	223*	223
Courier	17.1	8.5	254	254
HP Font Cartridge Fonts				
Combo Cartridge 1255824				
OCR-A	10	12	19	19
OCR-B	10	12	3	3
Prestige Elite	12	10	86*	86
Orator	10	14	5*	5
Courier	12	10	85*	85
Helvetica	Prop.	14	34105	34105
Supports M Cartridge 1255841				
Prestige Elite	12	10	86*	86
Prestige Elite bold	12	10	111	111
Prestige Elite italic	12	10	112	112
Supports R Cartridge 1255842				
Orator bold	6.5	18	435	435
Orator bold	8.1	16	434	434
Orator bold	10	14	38	38
Letter Gothic	10	14	40	40
Lines I	10	14	31	31
Lines II	10	14	32	32
Supports U/V Cartridge 1255843				
Swiss 721	Prop.	6	34101	34101
Swiss 721	Prop.	8	34102	34102
Swiss 721 bold	Prop.	10	34123	34123

Swiss 721 bold	Prop.	12	34124	34124
Swiss 721 bold	Prop.	14	34125	34125
Letter Gothic	15	9.5	230	230
Supports Z Cartridge 1255844				
Press Roman	Prop.	8	185	185
Press Roman	Prop.	10	186	186
Press Roman bold	Prop.	10	187	187
Press Roman italic	Prop.	10	188	188
Press Roman	Prop.	12	189	189
Press Roman bold	Prop.	12	190	190
Press Roman italic	Prop.	12	191	191
Press Roman bold	Prop.	14	192	192
Letter Gothic	17.1	8.5	255	255
Supports Z Cartridge 1255845				
Swiss 721	Prop.	10	34103	34103
Swiss 721 italic	Prop.	10	34231	34231
Swiss 721	Prop.	12	34104	34104
Swiss 721 italic	Prop.	12	34232	34232
Swiss 721	Prop.	8	34102	34102
Swiss 721 bold	Prop.	10	34123	34123
Swiss 721 bold	Prop.	12	34124	34124
Swiss 721 bold	Prop.	14	34125	34125
Letter Gothic	17.1	8.5	255	255
Supports Resident Cartridge 1255846				
Courier	10	12	11*	11
Courier bold	10	12	46	46
Courier italic	10	12	18	18
Courier bold	12	10	108	108
Courier italic	12	10	92	92
Courier	16.7	8.5	252	252

APPENDIX E

Scan Codes

The keyboard scan codes shown on the following pages are the factory defaults. These codes can be changed using the Advanced Functions, Keyboard, "Scan Code Customize" option in the configuration software as described in Chapter 4.
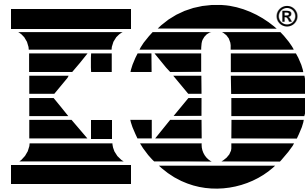
PC Keyboard

AT Keyboard

Enhanced PC Keyboard

5250 Keyboard

"Products That Work"

This page left intentionally blank.

APPENDIX F

Keyboard Templets

The following table gives a general definition for each 5250 (host) key. Keyboard templates have been included.

5250 Keys	Functions of the Keys
Cmd	This key disregards the normal function of the repeating key and performs the function assigned in the host's program.
Del	Deletes the character where the cursor is located.
Dup	Requests that the host program duplicate the data from the same field in the previous record.
Erase Input	Erases data entered in all input fields. The cursor will move to the top left corner of the screen.
Error Reset	Unlocks keyboard after it is locked because of error condition. The key will also reset the help, insert, command, and system request modes.
Field +	Can be used as a field exit key in all fields.
Field -	Operates much like the Field + key, but in signed numeric and numeric fields only.
Field Exit	Used to exit fields that are specified in a program as field-exit required, or as right justified.
Help	Describes the current error condition. The error reset key will reset the help message and error condition to restore the screen and unlock the keyboard.

5250 Style on an AT Keyboard (ORIG)

I-O 8250 Series Emulator Card Template

Command Summary:

Configuration Program: IOCONFIG

Start Emulation: IO8251

End Emulation:
at 3X Main Menu OFF <ENTER>
at 3X Sign-On Screen <ALT><CTRL><DEL>

Hot Key to DOS or
Printer Control Screen: <ALT><ESC>

Status Line:

rr-cc	Cursor location (Row-column)
SA	System Available
MW	Message Waiting
KS	Keyboard Shift
IM	Insert Mode
II	Input Inhibited
KB	Keyboard Buffering
Sn	n = active logical unit
An	n = active host address

Legend

Alt —
Shift ‖
NonShift │
Cmd ▬

5250 Style on an PC Keyboard (TERM)

I-O 8250 Series Emulator Card Template

Command Summary:

Configuration Program:	IOCONFIG
Start Emulation:	IO8251
End Emulation:	
at 3X Main Menu	OFF <ENTER>
at 3X Sign-On Screen	<ALT><CTRL><DEL>
Hot Key to DOS or	
Printer Control Screen:	<ALT><ESC>

Status Line:

rr-cc		Cursor location (Row-column)
SA		System Available
MW		Message Waiting
KS		Keyboard Shift
IM		Insert Mode
II		Input Inhibited
KB		Keyboard Buffering
Sn		n = active logical unit
An		n = active host address

Legend:
Alt
Shift
NonShift
Cmd

Keys shown:
SysReq / Attn, Cmd, Hot Key ~, Del / Ins, E Input / Home, Print, Help, Roll, Error Reset, Shift Lock, Enter, 0, Print, Field Exit, Field +, Field -, Test Req, Dup

Number row: 1/13 !, 2/14 @, 3/15 #, 4/16 $, 5/17 %, 6/18 ^, 7/19 &, 8/20 *, 9/21 (, 10/22), 11/23 -, 12/24 = +

Numeric keypad: 7, 8, 9, 4, 5, 6, 1, 2, 3, 0, .

5250 Style on an PC Keyboard (ORIG)

I-O 8250 Series Emulator Card Template

Command Summary:

Configuration Program: IOCONFIG

Start Emulation: IO8251

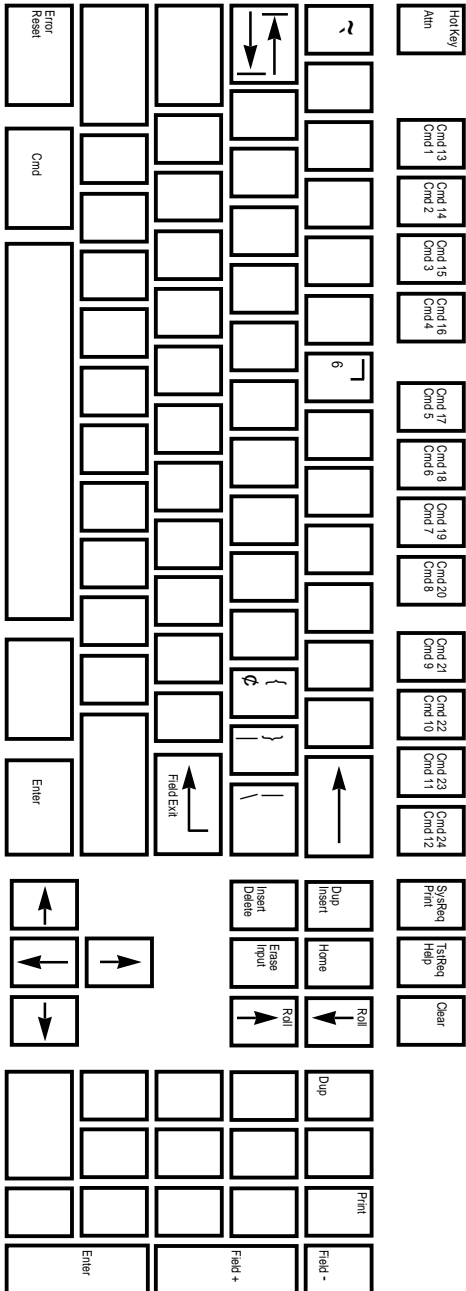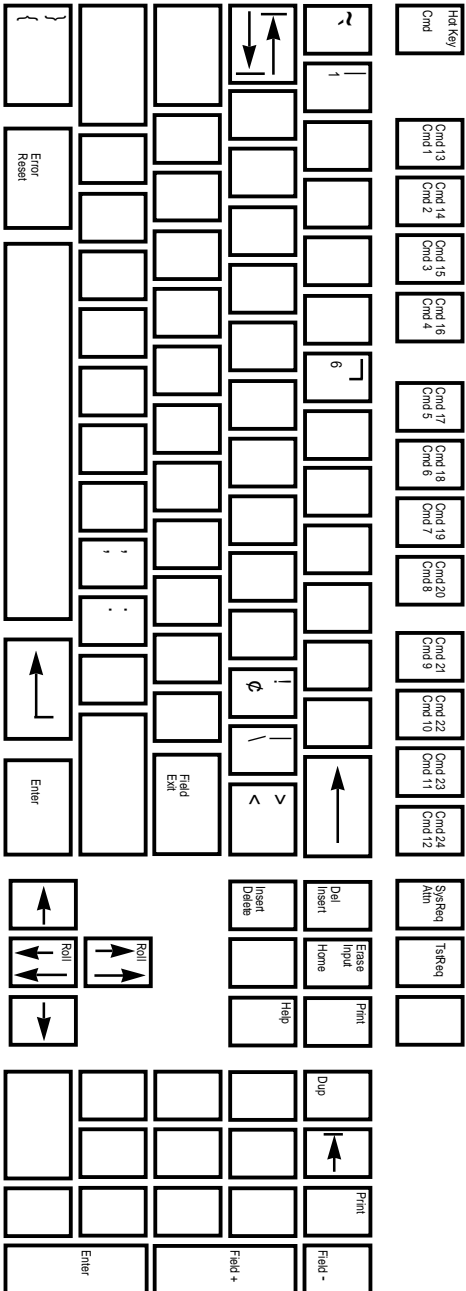End Emulation:
at 3X Main Menu   OFF <ENTER>
at 3X Sign-On Screen   <ALT><CTRL><DEL>

Hot Key to DOS or
Printer Control Screen: <ALT><ESC>

Status Line:

rr-cc   Cursor location (Row-column)
SA   System Available
MW   Message Waiting
KS   Keyboard Shift
IM   Insert Mode
II   Input Inhibited
KB   Keyboard Buffering
Sn   n = active logical unit
An   n = active host address

Legend
Alt —
Shift —
NonShift —
Cmd —

SysReq / Attn   Cmd   Hot Key ~   Enter   Test Req   Dup

Del / Ins   E Input / Home   Error Reset

Print   Help   Shift Lock

Roll   Roll   Field Exit   Field +   Field -

Print

1/13 2/14 3/15 4/16 5/17 6/18 7/19 8/20 9/21 10/22 11/23 12/24

0 . 1 2 3 4 5 6 7 8 9

5250 Style on an Enhanced Keyboard (TERM)

I-O 8250 Series Emulator Card Template

Command Summary:

Configuration Program: IOCONFIG

Start Emulation: IO8251

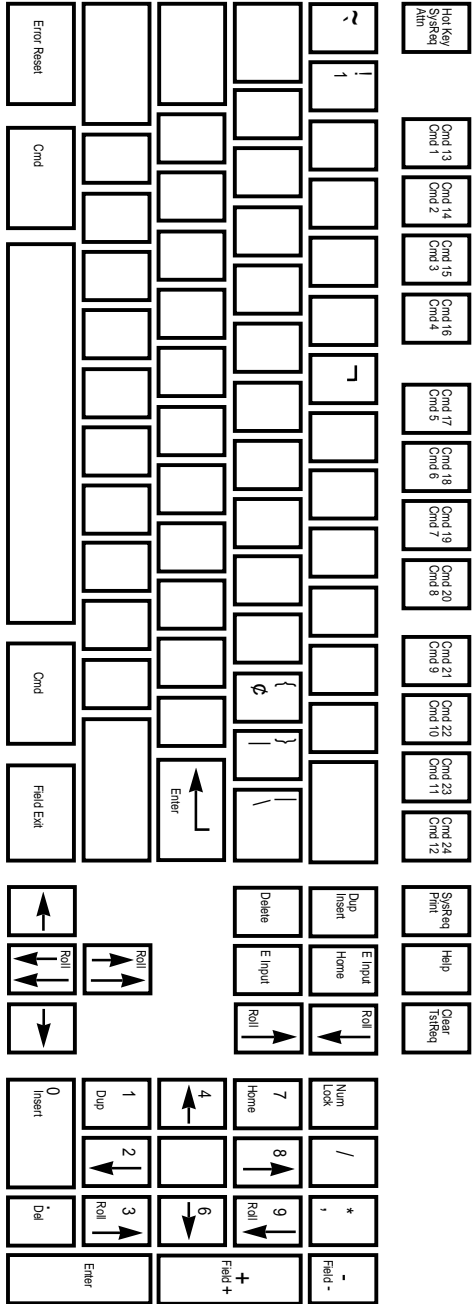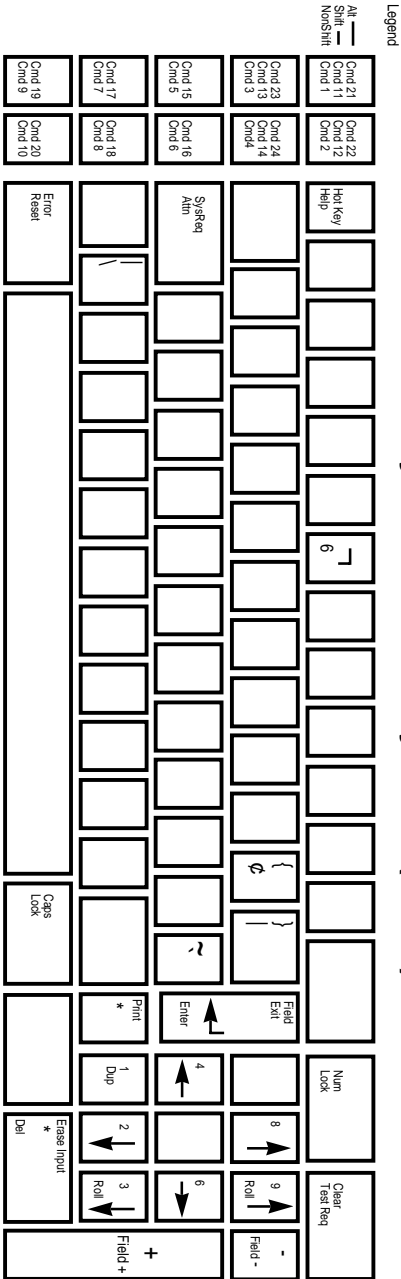End Emulation:
at 3X Main Menu: OFF <ENTER>
at 3X Sign-On Screen: <ALT><CTRL><DEL>

Hot Key to DOS or
Printer Control Screen: <ALT><ESC>

Status Line:
rr-cc   Cursor location (Row-column)
SA   System Available
MW   Message Waiting
KS   Keyboard Shift
IM   Insert Mode
II   Input Inhibited
KB   Keyboard Buffering
Sn   n = active logical unit
An   n = active host address

Key legends: Error Reset, Cmd, Enter, Hot Key / Attn, Cmd13/Cmd1, Cmd14/Cmd2, Cmd15/Cmd3, Cmd16/Cmd4, Cmd17/Cmd5, Cmd18/Cmd6, Cmd19/Cmd7, Cmd20/Cmd8, Cmd21/Cmd9, Cmd22/Cmd10, Cmd23/Cmd11, Cmd24/Cmd12, Field Exit, SysReq/Print, TstReq/Help, Clear, Dup/Insert, Insert/Delete, Home, Erase/Input, Roll, Dup, Print, Field +, Field -, Enter

5250 Style on an Enhanced Keyboard (ORIG)

I-O 8250 Series Emulator Card Template

Keyboard keys shown:
Hot Key Cmd, Error Reset, Cmd 13/Cmd 1, Cmd 14/Cmd 2, Cmd 15/Cmd 3, Cmd 16/Cmd 4, Cmd 17/Cmd 5, Cmd 18/Cmd 6, Cmd 19/Cmd 7, Cmd 20/Cmd 8, Cmd 21/Cmd 9, Cmd 22/Cmd 10, Cmd 23/Cmd 11, Cmd 24/Cmd 12, Field Exit, Enter, SysReq/Attn, TstReq, Del/Insert, Insert Delete, Erase Input/Home, Print, Help, Roll, Dup, Print, Enter, Field +, Field -

Command Summary:

Configuration Program:	IOCONFIG
Start Emulation:	IO8251
End Emulation:	
at 3X Main Menu	OFF <ENTER>
at 3X Sign-On Screen	<ALT><CTRL><DEL>
Hot Key to DOS or	
Printer Control Screen:	<ALT><ESC>

Status Line:

rr-cc	Cursor location (Row-column)
SA	System Available
MW	Message Waiting
KS	Keyboard Shift
IM	Insert Mode
II	Input Inhibited
KB	Keyboard Buffering
Sn	n = active logical unit
An	n = active host address

PC Style on an Enhanced Keyboard (ORIG)

I-O 8250 Series Emulator Card Template

Command Summary:

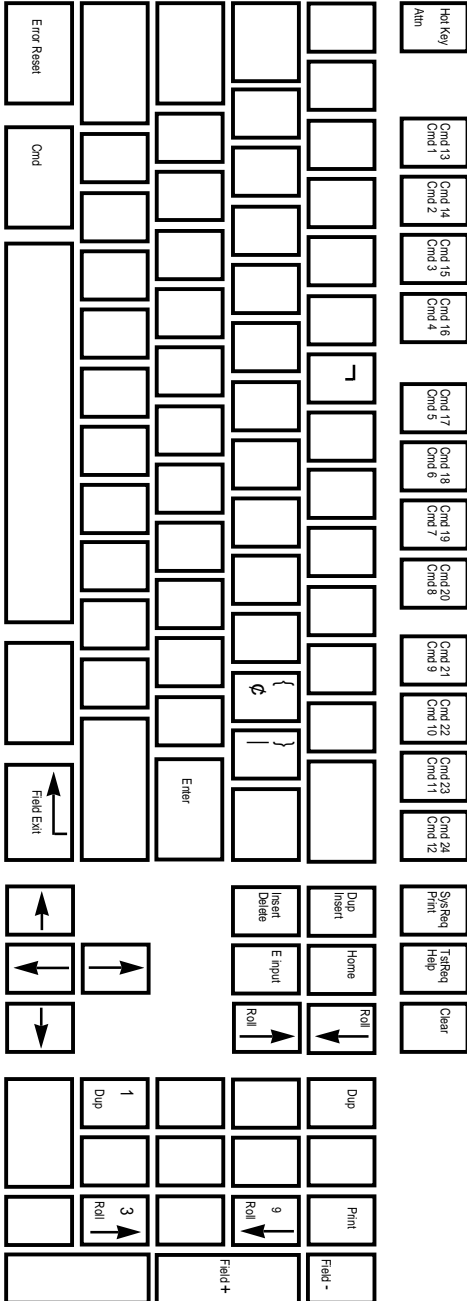|	
Configuration Program:	IOCONFIG
Start Emulation:	IO8251
End Emulation:	
at 3X Main Menu	OFF <ENTER>
at 3X Sign-On Screen	<ALT><CTRL><DEL>
Hot Key to DOS or	
Printer Control Screen:	<ALT><ESC>

Status Line:

Cursor location (Row-column)	rr-cc
System Available	SA
Message Waiting	MW
Keyboard Shift	KS
Insert Mode	IM
Input Inhibited	II
Keyboard Buffering	KB
n = active logical unit	Sn
n = active host address	An

Keyboard keys shown: Hot Key SysReq Attn, Error Reset, Cmd, Cmd 1 / Cmd 13, Cmd 2 / Cmd 14, Cmd 3 / Cmd 15, Cmd 4 / Cmd 16, Cmd 5 / Cmd 17, Cmd 6 / Cmd 18, Cmd 7 / Cmd 19, Cmd 8 / Cmd 20, Cmd 9 / Cmd 21, Cmd 10 / Cmd 22, Cmd 11 / Cmd 23, Cmd 12 / Cmd 24, Field Exit, Enter, Cmd, SysReq Print, Dup Insert, E Input Home, Delete, E Input, Help, Clear TstReq, Roll, Num Lock, Home, 7, 4, 1 Dup, 0 Insert, /, 8, 5, 2, Del, *, 9 Roll, 6, 3 Roll, Enter, Field - , Field + .

PC Style on an AT Keyboard (ORIG)

I-O 8250 Series Emulator Card Template

Command Summary:

Configuration Program:	IOCONFIG
Start Emulation:	IO8251
End Emulation:	
at 3X Main Menu	OFF <ENTER>
at 3X Sign-On Screen	<ALT><CTRL><DEL>
Hot Key to DOS or	
Printer Control Screen:	<ALT><ESC>

Status Line:

rr-cc		Cursor location (Row-column)
SA		System Available
MW		Message Waiting
KS		Keyboard Shift
IM		Insert Mode
II		Input Inhibited
KB		Keyboard Buffering
Sn		n = active logical unit
An		n = active host address

Legend:
Alt
Shift
NonShift

Cmd 21 / Cmd 11 / Cmd 1
Cmd 22 / Cmd 12 / Cmd 2
Cmd 23 / Cmd 13 / Cmd 3
Cmd 24 / Cmd 14 / Cmd 4
Cmd 15 / Cmd 5
Cmd 16 / Cmd 6
Cmd 17 / Cmd 7
Cmd 18 / Cmd 8
Cmd 19 / Cmd 9
Cmd 20 / Cmd 10

Error Reset
Field Exit
Caps Lock
Enter
Hot Key / Help
Num Lock
Clear / TstReq
Attn / SysReq
Dup
E. Input
Roll
Del
Field +
Field -
Print
1
3
9
Roll
*
+
-

PC Style on an PC Keyboard (ORIG)

I-O 8250 Series Emulator Card Template

Legend
Alt —
Shift =
NonShift

Cmd 21 / Cmd 11 / Cmd 1
Cmd 23 / Cmd 13 / Cmd 3
Cmd 22 / Cmd 12 / Cmd 2
Cmd 24 / Cmd4 / Cmd 2
Cmd 15 / Cmd 5
Cmd 16 / Cmd 6
Cmd 17 / Cmd 7
Cmd 18 / Cmd 8
Cmd 19 / Cmd 9
Cmd 20 / Cmd 10
Cmd 14

Error Reset
SysRq Attn
Hot Key Help
Caps Lock
Print *
Enter
Field Exit
Num Lock
Dup 1
Erase Input Del *
Clear Test Req
Field +
Field -
Roll
Roll

Command Summary:

Configuration Program: IOCONFIG

Start Emulation: IO8251

End Emulation:
at 3X Main Menu   OFF <ENTER>
at 3X Sign-On Screen   <ALT><CTRL><DEL>

Hot Key to DOS or
Printer Control Screen: <ALT><ESC>

Status Line:

rr-cc — Cursor location (Row-column)
SA — System Available
MW — Message Waiting
KS — Keyboard Shift
IM — Insert Mode
II — Input Inhibited
KB — Keyboard Buffering
Sn — n = active logical unit
An — n = active host address

PC Style on an AT Keyboard (TERM)

I-O 8250 Series Emulator Card Template

Legend

Alt — Cmd 21 / Cmd 11 / Cmd 1
Shift =
NonShift =

Cmd 21 Cmd 11 Cmd 1
Cmd 23 Cmd 13 Cmd 3
Cmd 15 Cmd 5
Cmd 17 Cmd 7
Cmd 19 Cmd 9

Cmd 22 Cmd 12 Cmd 2
Cmd 24 Cmd 14 Cmd 4
Cmd 16 Cmd 6
Cmd 18 Cmd 8
Cmd 20 Cmd 10

Error Reset

Field Exit

Caps Lock

Enter

Hot Key Help

Num Lock

Clear TstReq

Attn SysReq

Dup

1

Del

Roll 3 *

Field +

E. Input *

Field –

Roll 9 *

Print *

Command Summary:

Configuration Program:	IOCONFIG
Start Emulation:	IO8251
End Emulation:	
at 3X Main Menu	OFF <ENTER>
at 3X Sign-On Screen	<ALT><CTRL><DEL>
Hot Key to DOS or	
Printer Control Screen:	<ALT><ESC>

Status Line:

rr-cc	Cursor location (Row-column)
SA	System Available
MW	Message Waiting
KS	Keyboard Shift
IM	Insert Mode
II	Input Inhibited
KB	Keyboard Buffering
Sn	n = active logical unit
An	n = active host address

PC Style on an PC Keyboard (TERM)

I-O 8250 Series Emulator Card Template

Command Summary:

Configuration Program: IOCONFIG

Start Emulation: IO8251

End Emulation:
at 3X Main Menu — OFF <ENTER>
at 3X Sign-On Screen — <ALT><CTRL><DEL>

Hot Key to DOS or
Printer Control Screen: <ALT><ESC>

Status Line:

rr-cc	Cursor location (Row-column)
SA	System Available
MW	Message Waiting
KS	Keyboard Shift
IM	Insert Mode
II	Input Inhibited
KB	Keyboard Buffering
Sn	n = active logical unit
An	n = active host address

Legend
Alt —
Shift —
NonShift

Cmd 21 / Cmd 11 / Cmd 1
Cmd 23 / Cmd 13 / Cmd 3
Cmd 9 / Cmd 7 / Cmd 5 / Cmd 15
Cmd 22 / Cmd 12 / Cmd 2
Cmd 24 / Cmd 14 / Cmd4
Cmd 16 / Cmd 6
Cmd 18 / Cmd 8
Cmd 20 / Cmd 10
Cmd 17
Cmd 19

Error Reset
SysReq Attn
Hot Key Help
Caps Lock
0 Insert
Print *
Enter
Field Exit
Num Lock
Dup
Home 7
Erase Input
Del
Field -
Clear Test Req
Roll 9
Field +
Roll

PC Style on an Enhanced Keyboard (TERM)

I-O 8250 Series Emulator Card Template

Command Summary:

Configuration Program: IOCONFIG

Start Emulation: IO8251

End Emulation:
at 3X Main Menu   OFF <ENTER>
at 3X Sign-On Screen   <ALT>-<CTRL>-<DEL>

Hot Key to DOS or
Printer Control Screen: <ALT>-<ESC>

Status Line: rr-cc

rr-cc	Cursor location (Row-column)
SA	System Available
MW	Message Waiting
KS	Keyboard Shift
IM	Insert Mode
II	Input Inhibited
KB	Keyboard Buffering
Sn	n = active logical unit
An	n = active host address

Keyboard key labels: Hot Key Attn, Error Reset, Cmd, Cmd 13 / Cmd 1, Cmd 14 / Cmd 2, Cmd 15 / Cmd 3, Cmd 16 / Cmd 4, Cmd 17 / Cmd 5, Cmd 18 / Cmd 6, Cmd 19 / Cmd 7, Cmd 20 / Cmd 8, Cmd 21 / Cmd 9, Cmd 22 / Cmd 10, Cmd 23 / Cmd 11, Cmd 24 / Cmd 12, Enter, Field Exit, SysReq Print, TstReq Help, Clear, Dup Insert, Home, Roll, Insert Delete, E input, Roll, Dup, Print, 1 Dup, 3 Roll, 9 Roll, Field +, Field −

PC Style on an Enhanced Keyboard (TERM)

I-O 8250 Series Emulator Card Template

Command Summary:

Configuration Program:	IOCONFIG
Start Emulation:	IO8251
End Emulation:	
at 3X Main Menu	OFF <ENTER>
at 3X Sign-On Screen	<ALT><CTRL><DEL>
Hot Key to DOS or	
Printer Control Screen:	<ALT><ESC>

Status Line: rr-cc

rr-cc	Cursor location (Row-column)
SA	System Available
MW	Message Waiting
KS	Keyboard Shift
IM	Insert Mode
II	Input Inhibited
KB	Keyboard Buffering
Sn	n = active logical unit
An	n = active host address

Keyboard template keys:
Hot Key Attn, Error Reset, Cmd, Cmd 13 / Cmd 1, Cmd 14 / Cmd 2, Cmd 15 / Cmd 3, Cmd 16 / Cmd 4, Cmd 17 / Cmd 5, Cmd 18 / Cmd 6, Cmd 19 / Cmd 7, Cmd 20 / Cmd 8, Cmd 21 / Cmd 9, Cmd 22 / Cmd 10, Cmd 23 / Cmd 11, Cmd 24 / Cmd 12, Enter, Field Exit, SysReq Print, TstReq Help, Clear, Dup Insert, Home, Roll, Insert Delete, E input, Roll, Dup, Print, Field +, Field -

"Products That Work"

This page left intentionally blank.

APPENDIX G

DIP Switch Settings

The following are DIP switch settings for the I-O 8251 and I-O 8251E emulator cards. Look for a sticker labeled "PC Plug" and match the sticker to the appropriate chart.

4 Session (PC Plug Q, PC Plug QK)

I-O 8251 Memory Address								
	Switch Number							
Address	1	2	3	4	5	6	7	8
C000-C3FF	OFF	OFF	ON	ON	ON	ON	OFF	OFF
C400-C7FF	OFF	OFF	ON	ON	ON	OFF	OFF	OFF
C800-CBFF	OFF	OFF	ON	ON	OFF	ON	OFF	OFF
*CC00-CFFF	**OFF**	**OFF**	**ON**	**ON**	**OFF**	**OFF**	**OFF**	**OFF**
D000-D3FF	OFF	OFF	ON	OFF	ON	ON	OFF	OFF
D400-D7FF	OFF	OFF	ON	OFF	ON	OFF	OFF	OFF
D800-DBFF	OFF	OFF	ON	OFF	ON	OFF	OFF	OFF
DC00-DFFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF

7 Session (PC Plug F, PC Plug FK)

I-O 8251E Memory Address								
	Switch Number							
Address	1	2	3	4	5	6	7	8
C00-C7FF	OFF	ON	ON	ON	ON	OFF	OFF	OFF
C800-CFFF	OFF	ON	ON	ON	OFF	ON	OFF	OFF
*D00-D7FF	**OFF**	**ON**	**OFF**	**ON**	**ON**	**OFF**	**OFF**	**OFF**
D800-DFFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF
E000-E7FF	OFF	OFF	ON	ON	ON	OFF	OFF	OFF
E800-EFFF	OFF	OFF	ON	OFF	ON	OFF	OFF	OFF

"Products That Work"

This page left intentionally blank.

APPENDIX H

Helpful Hints When Using DOS 6.0 MemMaker

When using MemMaker, a memory manager utility in MS-DOS 6.0, with
the I-O 8251EH, follow these procedures:

1. Before running MemMaker, make sure the I-O 8251 card has been
    enabled by typing at the prompt: **cd\8251**. (The directory where the
    emulation software was installed.)

    Run the emset command by typing at the prompt: **emset XXXX**.
    XXXX = address where emulator card is configured (default D000).

2. After MemMaker is complete, the CONFIG SYS file must be modified.
    Using any text editor, locate the command
    DEVICE=C:\DOS\EMM386.EXE. At the end of this line, add the
    option X=xxxx-yyyy to exclude the memory used by the I-O 8251 card.
    For example, if the card is configured at D000, the command would be
    X=D000-D7FF for the STD memory software. For LOW memory
    software, the command would be **X=D000-D3FF**.
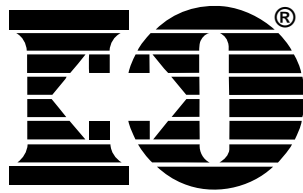
"Products That Work"

This page left intentionally blank.

APPENDIX I

Related Documentation

The following manuals may be helpful in the installation and operation of PC Support:

IBM PC Support/36 Messages Guide, SC 21-9525

IBM PC Support/36 Organizer, SC21-9563

IBM PC Support/36 User's Guide, SC21-9088

IBM PC Support/38 Messages Guide, SC21-9360

IBM PC Support/38 Technical Reference, SC21-9090

IBM PC Support/38 User's Guide, SC21-9089

IBM PC Support AS/400 DOS Installation and Administration
Guide, SC41-0006

IBM PC Support AS/400 DOS and OS/2 Technical Reference,
SC41-8091

IBM PC Support AS/400 OS/2 User's Guide, SC41-8200

IBM PC Support AS/400 OS/2 Installation Guide, SC41-0007

IBM PC Support AS/400 User's Guide for DOS, SC41-8199
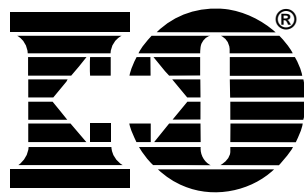
"Products That Work"

This page left intentionally blank.

APPENDIX J

HP MIO Resident Scalable Font Numbers

Font	Font ID No.
Letter Gothic	410
Letter Gothic Bold	420
Letter Gothic Italic	430
Courier	460
Courier Bold	470
Courier Italic	480
Courier Bold Italic	490
Symbol	3400
Wingdings	3500
Dingbats	3600
CG Omega	4919
CG Omega Bold	4939
CG Omega Italic	5067
CG Times	5687
CG Times Bold	5707
CG Times Italic	5815
CG Times Bold Italic	5835
Arial	6199
Arial Bold	6219
Arial Italic	6327
Arial Bold Italic	6347
Garamond Antiqua	8503
Garamond Halbefett	8523
Garamond Kursiv	8631
Garamond Kursiv Halbfett	8651
Coronet	8759

APPENDIX J

Claredon condensed	8779
Marigold	8887
Albertus medium	12855
Albertus extra bold	12875
Times New	16951
Times New Bold	12875
Times New Italic	17079
Times New Bold Italic	17099
Antique Olive	33335
Antique Olive Bold	33355
Antique Olive Italic	33463
Univers medium condensed	33591
Univers Bold condensed	33601
Univers Medium cond. Italic	33719
Universe Bold condensed Italic	33729
Universe Medium	34103
Universe Bold	34123
Universe Medium Italic	34251
Univers Bold Italic	34251
3812 Font Numbers which use the CG Times Typeface	
Sonoran-Serif	751
Sonoran-Serif	1051
Sonoran-Serif Bold	1053
Sonoran-Serif Italic	1056
Sonoran-Serif	1351
Sonoran-Serif Bold	1653
Sonoran-Serif Bold	2103

Manufacturer's One Year Limited Warranty
(United States)

The following warranty applies only to products purchased and operated within the United States.

I-O Corporation (I-O) warrants this product against defects in material and workmanship for a period of one year commencing from date of purchase by the original customer, when operated and maintained in accordance with I-O's published specifications. I-O's liability shall be limited, at its option and expense, to refund to buyer the actual amount paid by buyer or to repair or replace any defective or nonconforming product or part thereof, F.O.B. I-O's authorized repair depot. Buyer may obtain a replacement product by meeting the terms of the I-O Customer On-Site Exchange Repair Policy in effect at the time of the request.

THE EXPRESS WARRANTY SET FORTH ABOVE IS IN LIEU OF ALL OTHER EXPRESS OR IMPLIED WARRANTIES. OTHERWISE, THE PRODUCTS ARE SOLD AS IS WITHOUT FURTHER OBLIGATION OR LIABILITY ON THE PART OF I-O. I-O EXPRESSLY EXCLUDES ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

EXCEPT AS EXPRESSLY SET FORTH HEREIN, IN NO EVENT SHALL I-O BE LIABLE FOR ANY CLAIMS OR DAMAGE ARISING DIRECTLY OR INDIRECTLY FROM THE FURNISHING OR FAILURE TO FURNISH PRODUCTS, SPARE OR REPLACEMENT PARTS, INFORMATION OR SERVICES HEREUNDER.   UNDER NO CIRCUMSTANCES SHALL I-O BE LIABLE IN ANY WAY FOR INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES, INCLUDING, BUT NOT LIMITED TO LOST BUSINESS OR PROFITS, WHETHER OR NOT FORESEEABLE AND WHETHER OR NOT BASED ON BREACH OF WARRANTY, CONTRACT, OR NEGLIGENCE.

Warranty
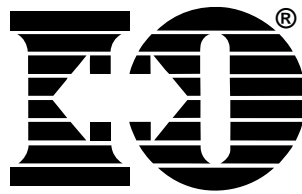
"Products That Work"

This page left intentionally blank.

Customer On-Site Exchange Repair Policy
Terms, Conditions, and Limitations
Effective May 1, 1994[a]

For products covered by the I-O Corporation (I-O) Manufacturer's Limited Warranty (United States), I-O's Customer On-Site Exchange (COE) Repair Policy provides customers with a replacement unit for a defective product, subject to the following terms and conditions:

Call Customer Support

- If a product fails call I-O Customer Support for assistance at (801) 972-1446.

Verify Product Failure

- I-O will verify the product serial number, warranty coverage and product failure.

* You are responsible for assisting in verifying the product failure.

- When I-O Customer Support verifies a product failure they will issue a Return Merchandise Authorization (RMA) number for the failed product.

Replacement Units

- Replacement units are shipped from I-O's stock of refurbished units, subject to availability.

- Replacement units carry the same warranty as remaining on the original product.

- I-O's COE Repair Policy applies only to warranted product failures. Buyer guarantees payment for non-warranted product repairs or replacement.

Customer On-Site Exchange Repair Policy
(Continued)

Return Your Failed Unit

- When you return the failed product it must be shipped freight prepaid. Always note the RMA number on the outside of the package.

Install the Replacement Unit

- You are responsible for installing the replacement unit.

- After receiving the replacement unit please call I-O Customer Support if any assistance is required.

---

a   I-O reserves the right to change the terms and conditions of this policy without notice.

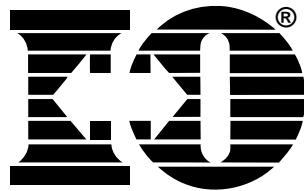## Manufacturer's One Year Limited Warranty
(International)

The following warranty applies only to products purchased or operated outside the United States.

I-O Corporation (I-O) warrants this product against defects in material and workmanship for a period of one year commencing from date of purchase by the original customer, when operated and maintained in accordance with I-O's published specifications. I-O's liability shall be limited, at its option and expense, to refund to buyer the actual amount paid by buyer or to repair or replace any defective or nonconforming product or part thereof, F.O.B. I-O's authorized repair depot. Buyer may obtain warranty service by meeting the terms of the I-O Return-to-Depot Repair Policy in effect at the time of the request.

THE EXPRESS WARRANTY SET FORTH ABOVE IS IN LIEU OF ALL OTHER EXPRESS OR IMPLIED WARRANTIES. OTHERWISE, THE PRODUCTS ARE SOLD AS IS WITHOUT FURTHER OBLIGATION OR LIABILITY ON THE PART OF I-O. I-O EXPRESSLY EXCLUDES ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

EXCEPT AS EXPRESSLY SET FORTH HEREIN, IN NO EVENT SHALL I-O BE LIABLE FOR ANY CLAIMS OR DAMAGE ARISING DIRECTLY OR INDIRECTLY FROM THE FURNISHING OR FAILURE TO FURNISH PRODUCTS, SPARE OR REPLACEMENT PARTS, INFORMATION OR SERVICES HEREUNDER.   UNDER NO CIRCUMSTANCES SHALL I-O BE LIABLE IN ANY WAY FOR INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES, INCLUDING, BUT NOT LIMITED TO LOST BUSINESS OR PROFITS, WHETHER OR NOT FORESEEABLE AND WHETHER OR NOT BASED ON BREACH OF WARRANTY, CONTRACT, OR NEGLIGENCE.

"Products That Work"

This page left intentionally blank.

Return-to-Depot Repair Policy
Terms, Conditions, and Limitations
Effective May 1, 1994[a]

For products covered by the I-O Corporation (I-O) Manufacturer's Limited Warranty (International), I-O's Return-to-Depot (RTD) Repair Policy provides customers with warranty service for a defective product, subject to the following terms and conditions:

Call Customer Support

- If a product fails call I-O Customer Support for assistance at:

    (801) 972-1446 for all locations outside the United States.

Verify Product Failure

- I-O will verify the product serial number, warranty coverage and product failure.

- You are responsible for assisting in verifying the product failure

- When I-O Customer Support verifies a product failure they will issue a Return Merchandise Authorization (RMA) number to authorize return of the failed product.

Select Your Preferred Repair Location

- I-O's Customer Support Representative will assist you in identifying the nearest I-O authorized repair depot.

- I-O's Customer Support Representative will provide you with an RMA transmittal form referencing the assigned RMA number and the authorized repair depot address.

Return-to-Depot Repair Policy
(Continued)

Return Your Failed Unit

- Return the failed product to the I-O authorized repair depot previously identified, enclosing the RMA transmittal form. When you return the failed product it must be shipped freight prepaid.

- I-O's RTD Repair Policy applies only to warranted product failures. Buyer guarantees payment for non-warranted product repairs.

Install Your Repaired Unit

- I-O's authorized repair depot will service the faulty unit and return it to you, freight prepaid.

- You are responsible for installing the returned unit.

- After receiving the repaired unit please call I-O Customer Support if any assistance is required.

---

[a] I-O reserves the right to change the terms and conditions of this policy without notice.

Manufacturer's One Year Limited Warranty
(European Area)

The following warranty applies only to products purchased and operated within the European Area.

I-O Corporation (I-O) warrants this product against defects in material and workmanship for a period of one year commencing from date of purchase by the original end-user, when operated and maintained in accordance with I-O's published specifications. I-O's liability shall be limited, at its option and expense, to refund to original end-user the actual amount paid by original end-user or to repair or replace any defective or nonconforming product or part thereof, F.O.B. I-O's authorized repair depot. Original end-user may obtain a replacement product by meeting the terms of the I-O Customer On-Site Exchange Repair Policy in effect at the time of the request.

THE EXPRESS WARRANTY SET FORTH ABOVE IS IN LIEU OF ALL OTHER EXPRESS OR IMPLIED WARRANTIES. OTHERWISE, THE PRODUCTS ARE SOLD AS IS WITHOUT FURTHER OBLIGATION OR LIABILITY ON THE PART OF I-O. I-O EXPRESSLY EXCLUDES ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

EXCEPT AS EXPRESSLY SET FORTH HEREIN, IN NO EVENT SHALL I-O BE LIABLE FOR ANY CLAIMS OR DAMAGE ARISING DIRECTLY OR INDIRECTLY FROM THE FURNISHING OR FAILURE TO FURNISH PRODUCTS, SPARE OR REPLACEMENT PARTS, INFORMATION OR SERVICES HEREUNDER.   UNDER NO CIRCUMSTANCES SHALL I-O BE LIABLE IN ANY WAY FOR INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES, INCLUDING, BUT NOT LIMITED TO LOST BUSINESS OR PROFITS, WHETHER OR NOT FORESEEABLE AND WHETHER OR NOT BASED ON BREACH OF WARRANTY, CONTRACT, OR NEGLIGENCE.

"Products That Work"

This page left intentionally blank.

Customer On-Site Exchange Repair Policy

Terms, Conditions, and Limitations
Effective June 1, 1997[a]

For products covered by the I-O Corporation (I-O) Manufacturer's Limited Warranty (European Area), I-O's Customer On-Site Exchange (COE) Repair Policy provides original end-users with a replacement unit for a defective product, subject to the following terms and conditions:

Call Customer Support

- If a product fails call I-O Customer Support for assistance at 44(0) 1908 567722.

Verify Product Failure

- I-O will verify the product serial number, warranty coverage and product failure.

- You are responsible for assisting in verifying the product failure.

- When I-O Customer Support verifies a product failure they will issue a Return Merchandise Authorization (RMA) number for the failed product.

I-O Ships Replacement Unit

- Replacement units are shipped from I-O's stock of refurbished units, subject to availability.

- I-O will invoice you for full retail value of the replacement unit upon shipment from I-O.

- Replacement units carry the same warranty as remaining on the original product.

- I-O's COE Repair Policy applies only to warranted product failures. You must pay for non-warranted product repairs or replacement.

WARRANTY INFORMATION

Customer On-Site Exchange Repair Policy
(Continued)

Return Your Failed Unit

- When you return the failed product it must be shipped freight prepaid. To insure proper tracking always note the RMA number on the outside of the package.

- I-O will issue you a credit (reversing the replacement unit invoice amount) when the failed product is received by I-O.

- If you do not return the failed product (or pay the replacement unit invoice) within 14 calendar days of the date the replacement unit is shipped from I-O, your warranty coverage and service will be suspended on all I-O products you own.

Install the Replacement Unit

- You are responsible for installing the replacement unit.

- After receiving the replacement unit please call I-O Customer Support if any assistance is required.

---

[a] I-O reserves the right to change the terms and conditions of this policy without notice.

GLOSSARY

active session - The host session currently being used, as opposed to an inactive session.

adaptor - A card that provides communications between part of a device and the processor.

address - In a computer, the location where the data is stored.

API (Application Program Interface) - System software that provides resources to create user interface features and to route programs or data.

APO (Auto Page Orientation) - Software decides by the size of the page if the data is to be printed in landscape or portrait orientation.

application - Software program used on a personal computer (PC).

ASCII (American Standard Code for Information Interchange) - The coding used in personal computer systems. Systems that link personal computers to IBM mainframes must include a translating device to connect the two codes.

attribute - A characteristic, such as bold and italic.

auto configure - Configures a program automatically during the initialization process.

automatic printer sharing - Automatically switches from PC printing to host printing and vice versa.

backup - To save information or data onto a diskette for a second copy.

BIOS (Basic Input/Output System) - A set of programs encoded in read- only memory (ROM) of IBM PC-compatible computers that facilitate the transfer of data and control instructions between the computer and peripherals.

blank character - A character that is not displayed but occupies a position on the display screen.

buffer - An area in the memory that holds data temporarily.

cache memory - RAM (random access memory) set aside to store the most frequently accessed information stored in RAM.

character - A letter of the alphabet, a number, punctuation mark, or any other symbol that represents information.

GLOSSARY

character set - A set of alphabetic, numeric, and special characters that may be displayed or printed by a system unit or device.

code page - Set of coded characters often displayed as an array or code table.

column separator - A vertical line used to separate one field from another.

command - An instruction that directs the system to perform a particular operation.

command keys - The keys on the top row(s) of the keyboard that are used to request a preassigned function of the system.

Command Pass-Thru™ - This feature allows access to all of the built-in features of a printer, even if these features are not normally available through the host software. Printer-specific command sequences are placed into the data sent to the printer from the host. The display station rec organizes these sequences and "passes the command through" to the printer.

configuration - Software setup of a computer program or system.

connector - A plug connected to a cable that fastens to a port of the back of a device.

COR (Computer Output Reduction) - Rotates data processing reports to landscape orientation and then compresses the text to fit 198 column by 66 lines on a page.

cpi - Characters per inch.

cursor - A character which indicates the position that data entry will occur.

default - The value assumed when no other value is specified.

default setting - The standard setting for a feature which automatically appears unless the user selects a different setting.

delimiter - A character that marks the beginning and/or ending of a unit of data.

DIP switch - Used to provide user-accessible configuration settings.

direct access - A hot key sequence used to take the user directly to the next host session configured.

display screen - A cathode ray tube that is used to display alphanumeric characters.

display station - An input/output device containing a display screen and an attached keyboard. Also called a terminal.

DOS (Disk Operating System) - A single user operating system developed by Microsoft. DOS can be referred to as PC-DOS for the PC, PS/1, and PS/2 series, or referred to as MS-DOS for nonIBM PCs.

DOS EMM386 - A memory management software.

dot matrix - A text printer that prints a series of dots to create characters.

driver - A program routine that contains instructions necessary to control the operation of a peripheral.

duplex - Prints on both sides of the paper.

EBCDIC (Extended Binary Coded Decimal Interchange Code) - A standard computer character set used to represent 256 standard characters. IBM mainframes use EBCDIC coding.

emulation - The duplication or imitation of one device by another device.

emulator card - A card that is installed into a PC, which enables the PC and PC printer to emulate host devices while allowing access to PC applications.

expanded memory - Area between 640K and 1M used as base memory.

extended memory - Memory that has been added to allow programs greater than 640K of RAM to run on a computer.

FGID (Font Global Identifier) - Font identifier used by IBM to standardize typestyle numbers used globally.

field attributes - Control characters stored in the character buffer in the first character position of a field.

field - An undefined area that contains a certain type of data.

file extension - A three letter suffix used to describe a file's contents (in addition to a DOS file name).

file transfer - A process used to transfer a file from one storage location to another.

font - (1) A collection of characters of a given typeface and size. (2) Used generically to mean the collection of coded fonts, font character sets, and code pages. (3) A font file that contains characters that must be used in conjunction with a code page file.

GLOSSARY

form feed - The advancing of a form in the printer to the top of the next page by a code sent to the printer from the computer

hex (hexadecimal) - A number system with a base of sixteen, numbers used are digits 0-9 and alpha A-F.

hex transparency - See Command Pass-Thru™

host - The central controlling processing unit in a twinax environment.

hot key - A selected key or key combination that accesses a menu command.

HP mode - Third party printer, if compatible, will receive HP LaserJet commands.

IBM mode - Same as HP, but will receive IBM LaserJet commands.

intensity - The brightness level used to display the characters on the screen.

I/O (Input/Output) - Transferring of data between the central processing unit and a peripheral device. Each transfer is an output from one device and an input into another device.

keyboard template - Keys on a keyboard.

key click - Keys will make clicking sounds when depressed unless disabled.

landscape - A printing orientation in which the text prints across the length of a page.

LED (light emitting diode) - A light located on the back of the emulator card that lights up when communicating with the host.

line feed - A character code that advances the cursor on screen in the printer to the next line.

logical unit (Abbreviated as LU) - Manage the exchange of data between the user and host application.

LPI(lines per inch) - The number of lines per vertical inch of paper.

macros - Keystrokes that have been saved and which can be played back.

memory address - A code number that specifies a specific area in a computer's random access memory (RAM).

message line - See status message.

microcode - One or more micro instructions.

Microsoft Windows™ - Windowing environment and application user interface (API) for DOS that brings some of the graphical user interface features to IBM format.

motherboard - The main board in the PC which other boards are installed.

nonshifted - Allows keys to be entered as characters or functions similar to when a shift key is not held down on a PC or typewriter.

PC Support - An IBM host/PC communications program that provides the emulator card with access to virtual disk, virtual printer, and shared folder functions.

pitch - The number of characters per horizontal inch, or the positioning intervals of characters in a line of text.

pixel - The smallest displayable unit on a video screen, out of which the displayed image is constructed.

portrait - A printing orientation in which the text prints across the width of a page.

PPDS (Personal Printer Data Stream) - A printer programming language for some IBM laser printers.

prompt - A display symbol, word, or phrase that requests the user to enter data from the keyboard.

RAM (Random Access Memory) - A storage device in which data is entered and retrieved in a non-sequential manner.

record/playback - Keyboard macro used to save keystrokes and then play them back.

resident - Program is in the memory.

root directory - Directory that contains a list of files stored on that disk.

Round Robin - A hot key sequence used to take the user sequentially through the highest host session, then to the Printer Control Screen, and then to DOS.

scan code - Code used to transmit data from the keyboard to the PC.

session - An active connection between the terminal emulation and a host system. A session is opened when the user signs on.

set text orientation - Text is printed in a specified orientation regardless of paper size when using this command.

GLOSSARY

simplex - Prints on only one side of the paper.

status attributes - An option used to define how the status line is displayed

status line - An information line displayed on screen that displays information to the operator concerning the processing of the text.

status message - Information on the last line of the display screen that tells the operator about display station conditions.

third-party - Software and/or hardware made from a company other than by the original manufacturer.

truncate - Breaks off a part of a number or character string.

twisted pair - A pair of small insulated wires commonly used in telephone cables that are twisted around each other to minimize interference from other wires in the cable.

upper memory block - A block of memory between the 640K unit of conventional memory and 1MB running on MS-DOS or an IBM-compatible computer.

virtual disk - Allows the user to assign a portion of the host disk to the PC.

virtual printer - Allows users to print data from the PC to a host system printer.

workstation - A display station or printer.

INDEX

INDEX

DECLARATION OF CONFORMITY

EUROPEAN COMMUNITY COMPLIANCE STATEMENT:

This product is in conformity with the protection requirements of
EC Council Directives 72/23/EEC, and 89/336/EEC on the
approximation of the laws of the Member States relating to:
Standard EN60950 (Safety of Information Technology Equipment);
Standard EN50082-1 (Generic Immunity Standard for Residential,
Commercial, and Light Industrial Products); and Standard EN55022
(Limits and Methods of Measurement of Radio Interference from
Information Technology Equipment).

WARNING: 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.

DELCARATION OF CONFORMITY

This page left intentionally blank.