Parallel Interface

Overview

The Parallel Interface gives you access to most printer functions using the Centronics parallel port. It was designed to operate principally in the PC environment, but can be used with any workstation.

The parallel interface operates in one of two modes: "Time-Out" or "Command" mode. Either mode can be selected from the front panel. In addition to the mode selection, you can select the Logical Device and set the time-out value (used in marking the end of data) through the front panel.

Time-Out Mode

A time-out value is used to determine where one binary image file ends and the next begins. Unlike network printing, only one **binary** file can be sent at a time, rather than back to back files, because the printer cannot distinguish one binary file from the next. To circumvent this problem, the **time** between files is used to separate the data.

In Time-Out mode, the interface process continuously checks the data lines of the parallel port. When the port becomes active, all data received is spooled by the printer. Once the port becomes inactive a timer is started and runs until a time-out value is reached, at which time, the current file is considered complete and the next printing job is initiated. Renewed activity on the port while the timer is running will reset the timer and the printer will assume that the data is still part of the current image file.

Longer settings for the time-out value will increase the pause required between sending image files, however, interruptions in transmission within an image file, caused by other system activity, will be less likely to be misinterpreted as a premature end of file. The default time-out value is set to 10 seconds.

A reliable method of printing from a PC is to use the **copy** command with the binary option. For example:

    C:\> **copy /b image.tif lpt1**

This command will send the file **image.tif** to the printer connected to Parallel Port 1 on the PC. Printing from a UNIX workstation can easily be done using a **cat** or similar command. For example:

    % **cat testimage.ras > /dev/pp0**

Note: PostScript files which use a control-d at the beginning

or end can be sent continuously without time-out periods separating the files. The printer will process all the PostScript jobs after the time-out expires on the last job.

Command Mode

In Command mode, the interface driver waits for commands. Unlike Time-Out mode, data is interpreted and whenever a command is recognized, it is executed. The time-out value is not used in this mode. Although more involved than the Time-Out mode, the Command mode offers access to image processing parameters (gamma, rotation, TCR, antialiasing, and scaling).

The Three Types of Commands

The printer recognizes three types of commands:

◆ Parameter setting commands.
◆ Print commands.
◆ Miscellaneous commands.

Parameter Setting Commands

The following 5 commands change the image processing parameters. A change to any parameter will remain in effect until it is changed again or until the **parallel system** file is deleted.

Each of these commands will generate a separate print job to be sent to the printer daemon. If all parameters must be changed simultaneously, one can use the print command with the Device set to Logical Device 0 as explained later. These parameters will only affect images sent over the parallel port:

gamma,*value***:**	*Changes the gamma value.*
rotate,*option***:**	*Changes the rotation option.*
tcr,*value***:**	*Changes the TCR value.*
antialias,*level***:**	*Changes the antialiasing level.*
scale,*method***:**	*Changes the scaling algorithm.*

The following two examples set the gamma and TCR values:

    C:\> **echo gamma,1.5: > prn**
    C:\> **echo tcr,50: > prn**

The following examples will set the scaling algorithm and image rotation:

    C:\> **echo scale,mitchell: > prn**
    C:\> **echo rotate,always: > prn**

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Print Commands

There are two types of commands used to send images to the printer. The **print** and the **data** commands. The **print** command is issued at the DOS prompt, whereas the **data** command constitutes part of the image header.

> C:\> **print,*filesize*{ @*device* }:**

This command is used to put the printer in a receive mode and must be followed by the image data. **@*device*** is an optional parameter that affects only the specific image sent with this command. If **@*device*** is not specified, then the Logical Device used will be the one specified from the front panel menu. The **print** command must be terminated by: any number of spaces and/or tabs, a return, or a newline.

Example:

From a PC at the DOS prompt:

C:\> **echo print,1000000@2: > prn**

Now the printer is ready to receive an image 1,000,000 bytes in size, to be printed on the Scaled Device (Logical Device 2).

It should be followed by the command:

C:\> **copy /b *image.file* prn**   *This sends the image data to the printer.*

The **data** command is similar to the **print** command but is issued as part of the image header and must be embedded in the image file. It should not be followed by any white space. That is, the byte immediately following the colon must be the first byte of the image data.

> **data,*filesize*{ @*device* }:**

Example:

Assume that the image file starts with FFFFFF and that the file size is 1,000,000 bytes in size. The file will start as follows:

data,1000000@1:FFFFFF *... rest of file ...*

When the modified file is sent to the parallel port, it will be printed using the Unscaled Device (Logical Device 1).

Miscellaneous Commands

> **delete:**

Removes the user's **parallel system** file. After this command is issued, all images will print using the image parameters set in the **root system** file, if it exists. If the **root system** file does not exist, then the printer factory default values will be used.

Examples: From a PC at the DOS prompt:

C:\> **echo delete: > prn**   *To remove the **parallel system** file.*

Setting the Parallel Port Mode

Use the following front panel key sequences to select the parallel port operating mode. When an **<Up-arrow>** or **<Down-arrow>** is indicated, press the key repeatedly until the correct response is showing on the LCD. Start from the READY display.

Use Key	Until LCD Displays
<Setup>	SETUP: NETWORK
<Down-arrow>	SETUP: PARALLEL
<Setup>	PAR: MODE
<Setup>	*The LCD will display the current active mode with an asterisk (*) in front of the mode name.*
<Up-arrow> *or* **<Down-arrow>**	*Until the desired mode is shown on the LCD.*
<Setup>	PAR: MODE

The last mode displayed on the LCD is now the active mode. *If the* **<Setup>** *key is pressed again, the active mode will be displayed with an asterisk (*) in front of the mode name. Press the* **<Setup>** *key to return to the* PAR: MODE *menu.*

To exit the setup mode and return the printer to the READY *state, use the following sequence:*

<Up-arrow>	PAR: EXIT
<Setup>	READY

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