NAVIGATOR

PLUG-IN MANUAL

SPEEDWAY

VERSION 6.4.0.0S
JUNE 5, 2007

XITRON

YOUR BUSINESS. OUR DRIVE.

Xitron Part Number Doc-1007-01/07

Overview

Xitron's Navigator PostScript RIP and Raster Blaster TIFF Catcher rely on software modules called plug-ins to communicate with imaging systems. In many cases they work in tandem with an interface card, while in others it is simply a conversion to a bitmap file in a compatible format.

When interface cards are involved, these plug-ins act as device drivers and control most actions of the output devices. Some of these actions include checking device status, device setup, and advancing and cutting material. In addition, the plug-in relays all the physical characteristics of an engine such as supported resolutions and imageable area.

During the launch sequence, both Navigator and Raster Blaster scan a specific directory for plug-ins. The software loads each plug-in it finds, and then queries them for a description of the capabilities of the supported devices. In this manner the plug-in configures the RIP to output a bitmap to these devices.

Each plug-in controls a particular family of recorders and is able to understand most messages and errors communicated by the output device. Plug-ins for use with Windows-based platforms consist of three software modules. The first module is the core plug-in written specifically for a particular device. This DLL is 32-bit code and runs under Windows NT, Windows 2000 Server, Windows 2000 Professional, Windows 2003 Server and Windows XP. The second module is a kernel mode device driver. This module communicates with the

Xitron interface boards and moves the bitmap data from the PC to the output device's interface. The third module is a "helper" DLL that translates calls from the plug-in to the Windows device driver.

When a page is sent to an output device for imaging, the Xitron software loads the correct plug-in and begins a series of steps prior to output. The plug-in first initializes the engine and checks that it is ready. After receiving the proper signal, the plug-in will begin reading bitmap data from the platform's hard drive into a "printer buffer." Once the printer buffer is full, the plug-in will start communicating the data to the output device. As the output device consumes the data, the plug-in relays this information to the software, which then refills the buffer. This continues until all of the data has been communicated to the output device. The plug-in tells the software the job is complete and waits for an indicator that the recorder has finished. This process is repeated for each page being output.

Raster Blaster

Plug-ins used by Xitron's Raster Blaster have the same functionality as those for the Navigator RIP and the same options are available for configuration. Therefore, unless otherwise specified, the information in this manual will apply to both products. See the Raster Blaster Reference Manual for specific configuration information.

Configuring Devices

Xitron distributes a separate plug-in for each recorder family. This plug-in, in conjunction with firmware on specific Xitron interface cards (PCI & PCI-X), has the capability to drive most of the devices in each recorder family. Users may install more than one plug-in within a single RIP. In addition, it is possible to configure more than one engine type within a single plug-in.

Xitron pre-configures most plug-ins to display all output devices currently supported. To view these devices, click the Device Manager icon shown in Figure 1.

Figure 1: Device Manager Icon

The Device Manager dialog box shown in Figure 2 will display. If the dialog displays the user's output device in the scrollable list, no further editing is necessary. The names of the available output devices will appear in the Output Device pull-down menu of the Page Set-up dialog box. However, in the rare circumstance that another device name is necessary; the user has the option of customizing the name field.

With the Device manager dialog window open, click ***New*** or select an existing device and click ***Edit***.

Figure 2: Device manager Dialog

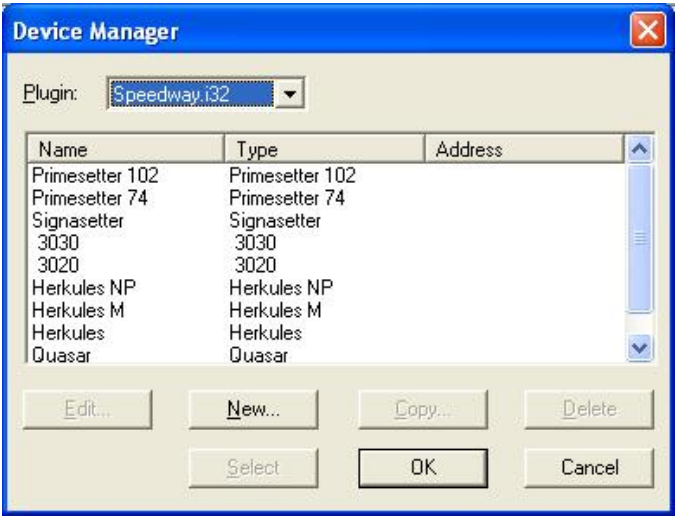
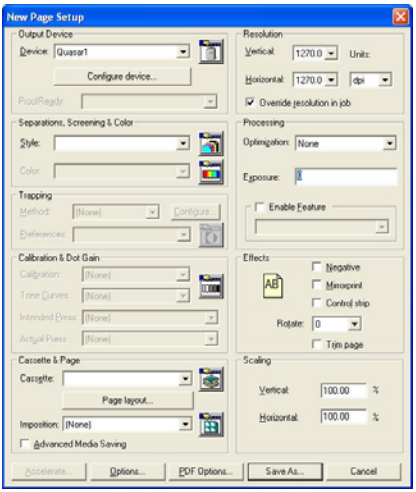


Figure 3: Device Manager Edit

A dialog box similar to the one shown in Figure 3 will display. Enter a name for the device. This name will display in the Device pull-down menu as a selection in the Page Setup dialog. For example, if two Quasar imagesetters are being driven by the same plug-in and differentiation between the two is important, edit this field to reflect Quasar1 and Quasar2.

The name can be any string of up to 32 characters. Select the specific recorder from the pull-down menu labeled, "***Type***." Ignore the address field, as it is not used. After making the selections, click "***OK***" to make the device available in the Page Setup menu as seen in Figure 4.

Figure 4: page Setup



Speedway Specific Settings

Xitron's Speedway plug-in supports the following recorders:

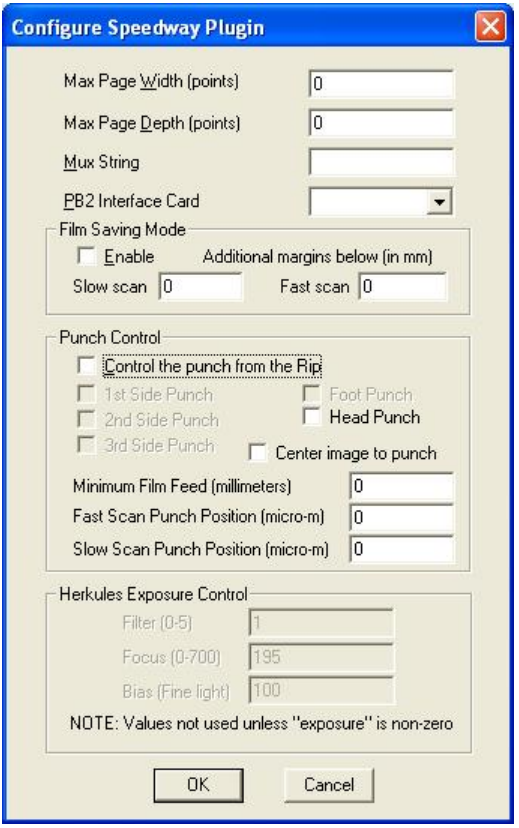
Primesetter 102	Herkules NP
Primesetter 74	Herkules M
Signasetter	Herkules
3030	Quasar
3020	

Based on the device selected in the pull-down menu of the Page Setup, various capabilities regarding resolution, density settings, page orientations and film dimensions will automatically populate the available menu options. For example, choosing Herkules NP provides only four resolution options, which match the programming of the NP device. Selecting Herkules yields two additional resolutions to match the capability of the standard Herkules imagesetter.

Choose the appropriate resolution, density, and page orientation from the main window of Page Setup as shown in Figure 4. Click the button labeled, "***Configure device…***" to change settings that are more specific to the output device such as punch positioning.

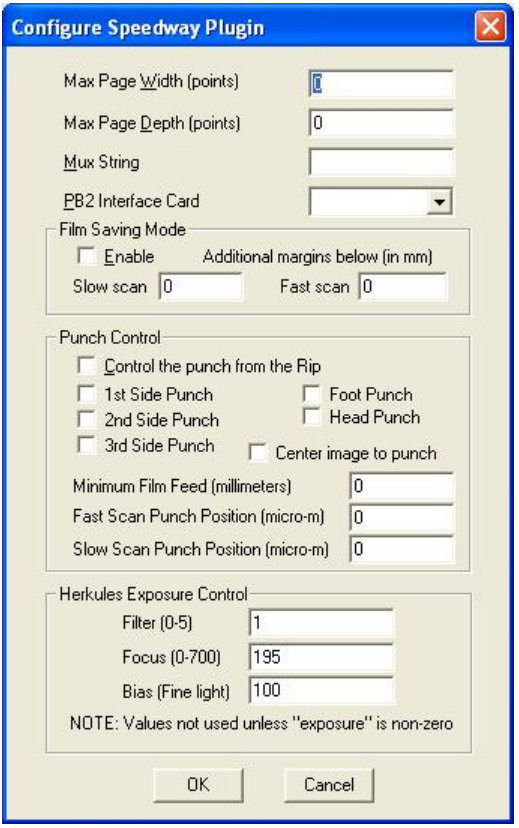
Some configuration options will be grayed out and non-editable. This occurs when the device chosen does not offer that particular functionality. An example can be seen in Figure 5, which shows the Configure Device window as it pertains to the Quasar. In this example there are few selectable options for punching because of the limitations within the Quasar.

Figure 5: Quasar Configure Device



However, all of the options are available within the Configure Device dialog of the Herkules, including an area tasked with controlling the exposure of the output. This dialog box can be seen in Figure 6.

Figure 6: Herkules Configure Device



Again, depending on the device's capabilities, the following options may be configurable from this dialog box:

- **Max Page Width:** This value is used to override the built-in width-clipping feature of the plug-in. When this value is set to 0, the plug-in

will always clip images at the maximum width built into the plug-in. Non-zero values will cause the plug-in to allow images of the set value. Enter values in points.

- **Max Page Depth:** Use this value to set the maximum length of an imaged job. This feature is helpful if a film device is imaging plate material and the material must be a consistent length. Setting this value to 0 disables the feature. If this value is set to 0 on a drum or cut sheet type imager, images will be clipped at the maximum length allowed by the plug-in. Non-zero values will cause the plug-in to allow images of the set value. Enter values in points.
- **Mux String:** This is used in an environment with a multiplexer, which can scan for a connection to one or more output devices.
- **PB2 Interface Card:** If more than one interface (ArborSB) card is in the PC, select the appropriate interface here. The default for this box is blank, signifying that the first configured card will be used.
- **Film Saving Mode:** These features enable an option similar to the Linotype RIP's "Collect Mode." In this mode, the media remains stationary on the drum while multiple exposures are packed on the film, enabling more efficient media usage. When an exposure is started and there isn't enough film to fit it, the film advances and the process starts over at the top (side) of the film. Please refer to the section titled "Speedway

Drum Packing" for more information. **Note: Film Saving Mode CANNOT BE USED WITH PUNCHES.**

- **Enable:** Check this box to turn on the Film Saving Mode.
- **Additional Margins — Slow Scan:** This is an additional margin that will be added to the top and bottom of the image. The value entered in millimeters is split, half added to the top of the image and half added to the bottom of the image.
- **Additional Margins — Fast Scan:** This is an additional margin that will be added to the left and right sides of the image. The value entered in millimeters is split, half added to the left side and the other half added to the right side.

- **Punch Control Features:** Each recorder in the Speedway interface family have different punch configurations. This group of settings is used to control them. **NOTE: Enabling any punch will cause the Film Save Mode setting to be ignored. The two features are mutually exclusive.**
  - **Control the punch from the RIP:** Check this box to enable the punch control. If this box is not checked, the punch settings are not sent to the recorder during imaging. This has the effect of leaving the punch controls at their last setting or default. If this box is

checked, the controls in the remainder of this group dictate the punch action.

- **1st Side Punch:** Check this box to engage one of the three punches located around the circumference of a Herkules drum.
- **2nd Side Punch:** Check this box to engage one of the three punches located around the circumference of a Herkules drum.
- **3rd Side Punch:** Check this box to engage one of the three punches located around the circumference of a Herkules drum.
- **Foot Punch:** Check this box to engage the foot (supply side) bar punch.
- **Head Punch:** Check this box to engage the head (take-up side) bar punch.
- **Center image to punch:** Checking this box will cause the image to be aligned according to the punch location defined in the controls labeled "Fast Scan Punch Position (micro-m)" and "Slow Scan Punch Position (micro-m)." Depending on the punch selected, head, side, or foot, the system will expose the image aligned to the punch location. Using this feature can be complicated. Please refer to the section labeled, "Punch Centering" for more complete instructions and examples.

- **Minimum Film Feed:** This value, specified in millimeters, overrides the normal film advance at the end of the job. If the value is set to 0, it has no effect and the job width determines the

amount of film advanced. If this value is set to non-0 and any punch is selected (ON), this value will be used to determine the amount of film to advance after exposure. This value is most often needed with foot and side punches when "Center image to punch" has been selected. It should be set so that enough film is flushed to the output so that the punches are moved completely off the drum. If the selected punch is a Head Punch, the system will use this value as an **ADDITIONAL** feed amount, adding it to the width of the exposure.

- **Fast Scan Punch Position:** This value, specified in micrometers, is the fast scan position used for punch centering. The system stores this value as an internal coordinate, which may vary for each recorder model (Herkules, Herkules M, Quasar). It may also vary from software revision to software revision in recorders of the same model. For more information please refer to the section labeled, "Punch Centering."
- **Slow Scan Punch Position:** This value, specified in micrometers, is the slow scan position used for punch centering. The system stores this value as an internal coordinate, which may vary for each recorder model (Herkules, Herkules M, Quasar). It may also vary from software revision to software revision in recorders of the same model. For more information please refer to the section labeled, "Punch Centering."

- **Herkules Exposure Control:** This group of settings supplements the exposure control within the Page Setup dialog, providing all necessary laser intensity control of the Herkules recorders. Please refer to the section below on "Laser Intensity Controls" for more information. These values are only used on the Herkules recorders.
  - **Filter:** This setting selects which filter to engage at this resolution.
  - **Focus:** This setting selects the focus lens position.
  - **Bias:** This setting controls the current supplied to the laser when in the "off" state (dark). It is sometime referred to as "Bias light current" on Linotype equipment and software.

Speedway Laser Intensity

All members of the Speedway family of recorders allow for some type of control over laser intensity. With the Quasar, 3020, and 3030 this intensity control is a single value implemented as the "Exposure" control on the Page Setup dialog. On the Herkules recorders, a total of four values control the laser: intensity (exposure), filter, focus, and bias.

Enter the exposure from within the Page Setup dialog and the remaining values from within the Configure Device dialog. These four values are derived from a lengthy calibration procedure documented in the Herkules operation manual. For

installations where the Xitron Navigator RIP is replacing an existing Linotype RIP, these "sets" of values (one set for each resolution) can be collected from the configuration software of the existing RIP.

Another method for collecting existing exposure information is through the use of PB2Diag. With the interface and cable installed from the RIP or Raster Blaster platform, launch PB2diag and click "Singleboard" in the main menu. Drag down to "Debugger," mouse right to ArborSB0 and release. This sets the debug channel to monitor communications on the interface card.

Click in the area under Log to Disk and type this phrase: debug 1 3. (Be sure to type a SPACE between the 1 and 3.) Press the ***Return*** key and type matdata. With this window open, send a job to the output device. PBDiag will report the parameters as they had previously been set on the Speedway device in a format similar to the following:

Exposure Parameter for Herkules @ 2540

1201=intensity
1220=filter
1221=bias
1222=focus

For installations where values for intensity, filter, focus, and bias are not available, the table shown in Figure 7 may be helpful in providing initial values. Consult the Linotype-Hell documentation for specific calibration procedures.

Figure 7: Initial Exposure Values

Resolution	Exposure	Filter	Focus	Bias
5080 dpi	225	3	240	100
3386 dpi	195	2	240	100
2540 dpi	145	1	240	100
1693 dpi	195	1	300	100
1270 dpi	195	1	300	100

Speedway Drum Packing

There are two methods for optimizing film usage on Speedway recorders. One involves using the "Pack Drum" page feature supplied by Navigator to place multiple pages on the drum. The second is the "Film Save Mode" (described under 'Configuring Devices') feature in the Plug-in, which instructs the recorder to hold the film stationary while imaging additional pages. This feature mimics the "Collect Mode" implemented on Linotype-Hell RIPs.

With Film Save Mode enabled, Xitron recommends using the cut commands within the RIP as opposed to the front panel of the output device. If images have been output to the recorder and you do not wish to wait for the drum to fill before

processing, use the "Cut and Collect" (Ctrl + K) option from the device pull-down menu to force immediate output of the film into the take-up cassette. If you are using an on-line processor, use the "Discharge to Online Processor" (Ctrl + 4) selection in the pull-down menu.

Alternatively, you may wish to use the SpeedwayCut.exe utility found within the Navigator (or Raster Blaster) Utilities folder. This application can also send a command to the Speedway device to execute a Cut and Collect or a Discharge to Online Processor.

Use caution when running two RIPs outputting to a single Herkules while using Film Save Mode. There is no way for one RIP to know that the other RIP has partially exposed the drum. This will result in a double exposure.

Note: Film Save Mode is not available on the 3020 and 3030 and it cannot be used with punches on any Speedway device.

Punch Centering

Xitron's Speedway Plug-in allows centering of the exposure to a point defined as a punch pivot. This point, specified by the Configure Device dialog settings for "Fast Scan Punch Position" and "Slow Scan Punch Position" is defined in the coordinate system of the recorder's exposure window. For Linotype Quasar imagesetters, begin by entering zero for both the Fast

and Slow Scan settings in the Configure Device dialog box. The numbers for Fast and Slow Scan are entered in micrometers.

A micrometer is a measurement unit that allows for precise positioning of the image. As an example, 1000 micrometers are equal to 1 (one) millimeter. One millimeter is equal to 1/25.4 of an inch – there are 25.4 millimeters in an inch and 25,400 micrometers in an inch.

A change of 1,000 micrometers will only move the image by one millimeter. Therefore, initial adjustments of image placement will require large changes in the numbers used for the Fast Scan and Slow Scan positions. To precisely adjust image placement, use millimeters to measure the distance between the current position and the desired position then multiply by 1,000. For example, if the image is 26 millimeters from the desired position, add or subtract (depending on direction) 26,000 micrometers from the Fast Scan or Slow Scan number in the Configure Device window.

The punch position instructions that follow are for use with the Herkules family of imagesetters. It is possible to configure Herkules punch settings using the sample numbers provided in Figure 8. This requires using trial-and-error to determine the exact numbers needed for proper image position. Each individual Herkules imagesetter has its own unique coordinate system. To locate the "true" values of the coordinate system on any particular recorder, it is necessary to examine the following parameters shown in Figure 8.

Alternatively, PB2Diag can again be used to retrieve information from the Speedway device. Setting PB2Diag exactly as instructed before, instead of typing matdata, type meadata (measure data) and press ***Return***. Leave the PB2Diag window open and send a job. PB2Diag will report the data.

FIGURE 8: MEASURE DATA PARAMETER SET

Parameter #	Parameter Name	Herkules Value
32	SS2BOMA	-29500
33	FS2BOMA	257500
34	SS2EOMA	734500
35	FS2EOMA	819000

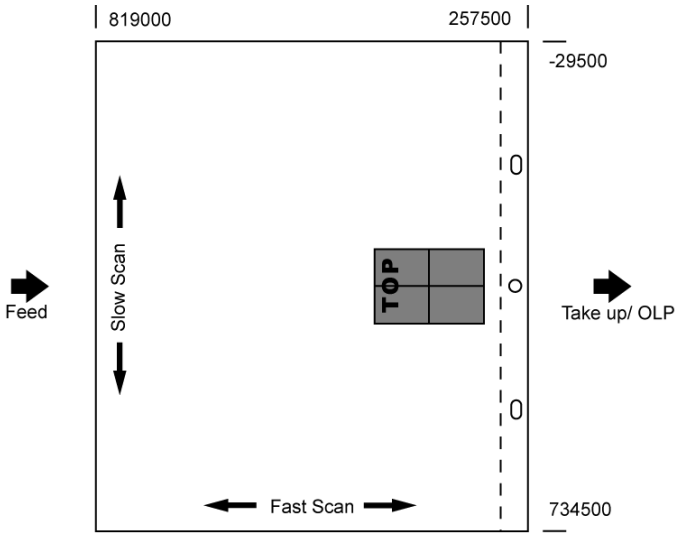
In Figure 8, the letters BOMA stand for Beginning of Maximum Area and EOMA stands for End of Maximum Area. SS is an abbreviation for Slow Scan and FS for Fast Scan.

Therefore, if the operator is facing the imagesetter from the film-feed side of the machine, parameters 32 and 33 define the upper left corner of the exposing window while 34 and 35 define the lower right corner.

The diagram in Figure 9 further illustrates the meaning of these numbers by demonstrating where the image begins, what its

maximum dimensions are, and how the exposed image relates to the position of the punch system. The intersection of SS2BOMA at -29500 and FS2BOMA at 257500 becomes the "0,0" coordinate, or the point at which the imagesetter begins imaging.

Figure 9: image Orientation



emulsion down
FS: 289700
SS: 353450
dotted line represents no image area
roughly 11/16

The punch pivot location is based on values in relation to this 0,0 point. It's important to remember that the Slow Scan

coordinates increase ***across the length*** of the drum, while Fast Scan coordinates increase ***around the width*** of the drum. The word "Top" in the gray image represents the top of the image in the Navigator ROAM window, not the actual orientation of the image.

Connecting the Interface

Xitron's Speedway interface uses a single cable with 9-pin D-shell connectors on both ends. Make sure both devices have been properly shut down and attach the cable to the external port of the interface card. Attach the other end of the cable to the Speedway port on the back of the imagesetter. There is a single Speedway port on the Quasar but the Herkules has two. Either port should work but if the user encounters a problem they should change the connection from one to the other.

More Information

For more information about Xitron Navigator or Raster Blaster, please review their respective user manuals, which can be found on the installation CDs or Xitron's website at www.xitron.com.