

SGI™ InfinitePerformance™: Scalable Graphics Compositor User's Guide

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For regulatory and compliance information, see Appendix A.

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Contents

Record of Revision	iii
Figures	vii
Tables	ix
About This Guide.	xi
Audience	xi
Chapter Descriptions	xi
Additional Information	xii
Conventions and Terminology	xii
Product Support	xiii
Reader Comments.	xiii
1. Product Description and Specifications	1
Product Description	1
Cooling and Power Specifications	4
Physical and Environmental Specifications.	6
2. Cabling the Scalable Graphics Compositor	7
Power Switch and Connectors on Rear Panel	7
Cabling the Scalable Graphics Compositor Hardware	9

- 3. **Configuring the Scalable Graphics Compositor** 17
- A. **Regulatory Specifications** 27
 - Manufacturer’s Regulatory Declarations 27
 - CMN Number 27
 - Class A Compliance 28
 - Electromagnetic Emissions 29
 - Japanese Notice 29
 - Industry Canada Notice (Canada Only) 29
 - CE Notice 29
 - Radio and Television Interference 30
 - Shielded Cables 30
 - Electrostatic Discharge 31
 - Safety Instructions 31
 - Index.** 33

Figures

Figure i	Injury or Death Warning Icon	xii
Figure ii	Equipment Damage or Data Loss Warning Icon	xiii
Figure 1-1	Sample of Input Combinations	2
Figure 1-2	Front Panel of the Scalable Graphics Compositor	3
Figure 1-3	Rear Panel of the Scalable Graphics Compositor	4
Figure 1-4	Chassis Airflow Diagram	5
Figure 2-1	Power Switch and Connectors on Rear Panel	7
Figure 2-2	V-brick with Two InfinitePerformance Pipes	9
Figure 2-3	Cables and Other Cabling Items Needed for Installation	11
Figure 2-4	Connecting the DVI Connectors	12
Figure 2-5	Connecting the Swap-Ready Connectors	13
Figure 2-6	Connecting the Genlock Connectors	14
Figure 2-7	Connecting to Digital and Analog Monitors	16
Figure 3-1	Sgcombine Main Window	18
Figure 3-2	Select Format Window	20
Figure 3-3	Example of Initial Tiling Mode (Quadrant)	22
Figure 3-4	Tiling Properties Window	24
Figure 3-5	Video Properties Window	26

Tables

Table 1-1	Cooling and Power Specifications	4
Table 1-2	Physical and Environmental Specifications	6
Table 2-1	Power Switch and Connectors on Rear Panel	8

About This Guide

The scalable graphics compositor is a graphics compositor that is capable of receiving two or four DVI digital video inputs, each input from one InfinitePerformance graphics pipe, and then combining them into a single video output to increase graphics performance. The video output can display out to digital or analog monitors at the same time.

This guide explains how to cable and configure the scalable graphics compositor. It also provides important regulatory specifications.



Warning: Before installing, operating, or servicing any part of this product, read the following section: “Safety Instructions” on page 31.

Audience

This guide is written for owners, system administrators, and users of the scalable graphics compositor. General knowledge of computers and computer operation is presumed.

Chapter Descriptions

The following topics are covered in this guide:

- Chapter 1, “Product Description and Specifications,” provides environmental and technical information needed to properly set up and configure the scalable graphics compositor enclosure.
- Chapter 2, “Cabling the Scalable Graphics Compositor,” describes all the connectors and LEDs located on the back of the compositor chassis.

- Chapter 3, “Configuring the Scalable Graphics Compositor,” describes how to use the Sgcombine utility to configure the compositor.
- Appendix A, “Regulatory Specifications,” lists all regulatory information related to use of the scalable graphics compositor in the United States and other countries.

Additional Information

SGI documentation is available in various formats on the Web at:

<http://techpubs.sgi.com/library>

Enter a keyword search, or search by title to find the information or manual you need.

When installing and configuring the scalable graphics compositor, you may want to consult *SGI Onyx 3000 Series Graphics System Hardware Owner’s Guide*.

Conventions and Terminology

This guide uses the following conventions:

- Document titles are in *italics*.
- Names of files appear in `Courier`.
- References to chapters and sections within this guide are in quotation marks.
- Characters that you type on your keyboard are in **Courier bold**.
- Procedures are explained in numbered steps. When necessary, an explanation follows the step.
- Warning text that describes conditions that could cause injury or death is highlighted with the lightning bolt icon, as shown in Figure i.



Figure i Injury or Death Warning Icon

- Cautionary text that describes conditions that could cause equipment damage or major data loss is highlighted with the icon in Figure ii.



Figure ii Equipment Damage or Data Loss Warning Icon

Product Support

SGI provides a comprehensive product support and maintenance program for its products. If you are in North America, contact the Technical Assistance Center at +1 800 800 4SGI or contact your authorized service provider. If you are outside North America, contact the SGI subsidiary or authorized distributor in your country.

Reader Comments

If you have comments about the technical accuracy, content, or organization of this document, contact SGI. Be sure to include the title and document number of the manual with your comments. (Online, the document number is located in the front matter of the manual. In printed manuals, the document number is located at the bottom of each page.)

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Product Description and Specifications

This chapter describes the scalable graphics compositor and provides product specifications in the following sections:

- “Product Description” on page 1
- “Cooling and Power Specifications” on page 4
- “Physical and Environmental Specifications” on page 6

Product Description

The scalable graphics compositor is a hardware graphics compositor that is capable of receiving two or four DVI digital video inputs, and then combining them into a single video output to increase graphics performance. Each input is from one SGI InfinitePerformance graphics pipe (VPro V12 board) residing in a V-brick. The video output can display on digital and analog monitors at the same time.

Each SGI InfinitePerformance graphics pipe video provides the data for an area of the video output. Figure 1-1 provides an example of the inputs of four InfinitePerformance graphics pipes contributing to the video output on your monitor. You can configure the area of the screen sent by each InfinitePerformance graphics pipe with the Sgcombine utility described in Chapter 3, “Configuring the Scalable Graphics Compositor.”

Note: If you are a software developer, you can also configure the scalable graphics compositor with programs accessed through the `GLX_SGIX_Hyperpipe` GLX extension. Enter `man hyperpipe` at your system console for more information on `GLX_SGIX_Hyperpipe`.

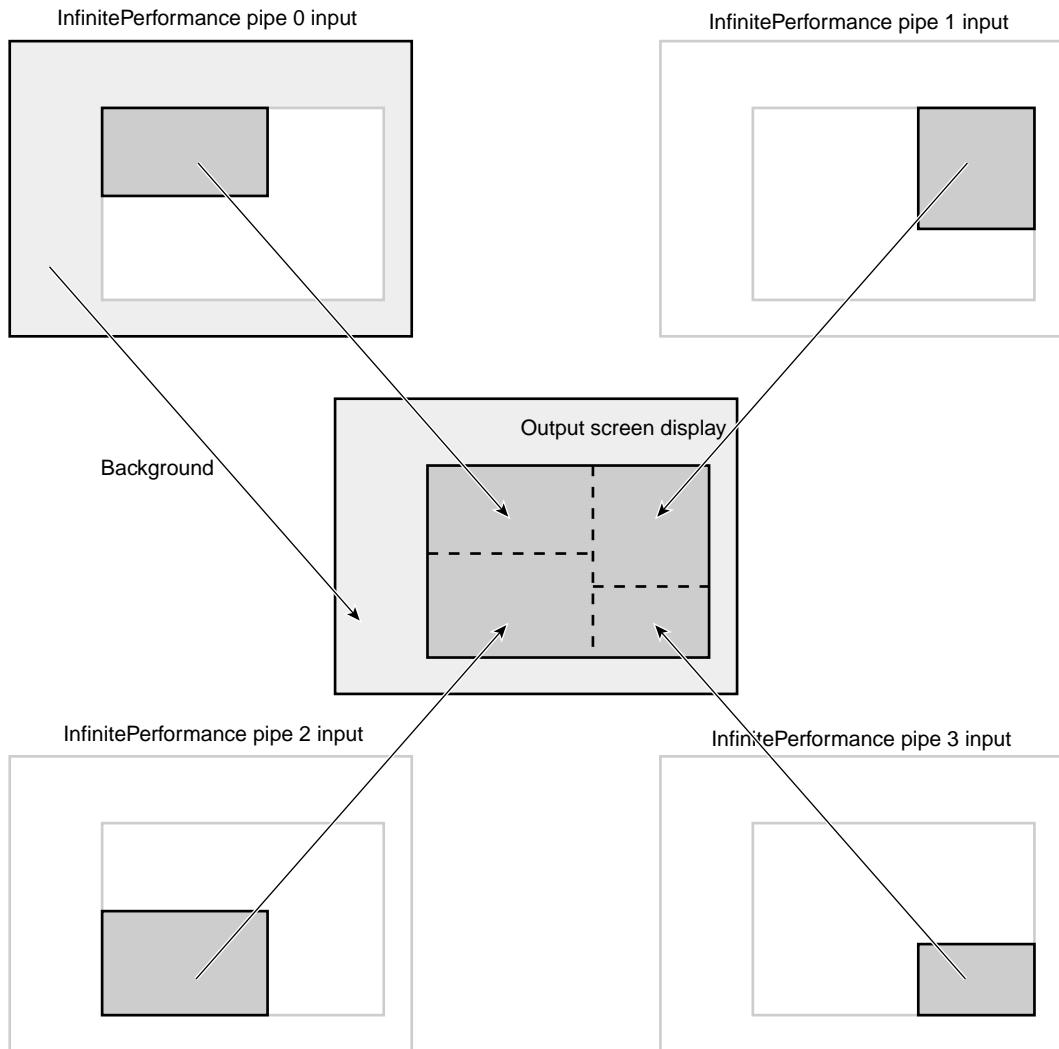


Figure 1-1 Sample of Input Combinations

The scalable graphics compositor is a 2U-sized unit that comes rackmounted or is rackmounted for you by an SGI system support engineer (SSE).

The scalable graphics compositor features include the following:

- Four DVI single-link digital video inputs with up to 165-MHz pixel clock per input that can combine into one digital video output that allows up to 165 MHz of output.
- One analog video output that supports up to 200-MHz pixel clock video output.
- DB9 stereo port connector to connect to an emitter to provide stereo effect for LCD shutter glasses.
- Genlock connectors to synchronize the video refresh of the compositor with the SGI InfinitePerformance pipes. Genlock enables the compositor to receive an external sync signal, which locks the timing of the output video picture.
- One swap-ready port connector that synchronizes the compositor buffer swaps to the InfinitePerformance graphics pipe buffer swaps.

Figure 1-2 shows the front panel of the scalable graphics compositor.

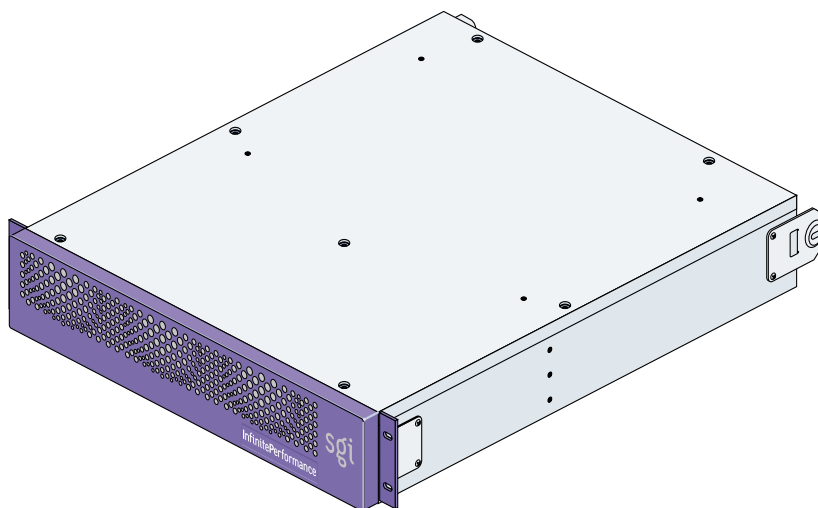


Figure 1-2 Front Panel of the Scalable Graphics Compositor

Figure 1-3 shows the rear panel of the scalable graphics compositor. For instructions for cabling the compositor using these rear panel connectors, see Chapter 2, “Cabling the Scalable Graphics Compositor.”

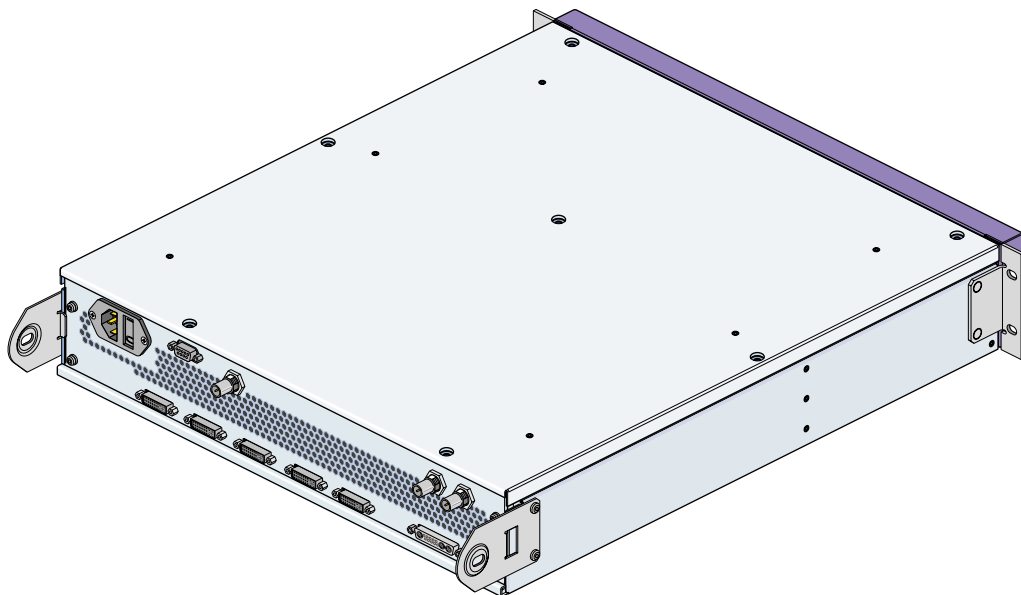


Figure 1-3 Rear Panel of the Scalable Graphics Compositor

Cooling and Power Specifications

Table 1-1 provides cooling and power specifications for a single scalable graphics compositor chassis.

Table 1-1 Cooling and Power Specifications

Specification	Value per Server
Cooling requirements	256 Btu/hour
Power consumption	125 Watts maximum
AC input to power supply	100-120/200-240 Vac at 50-60 Hz, 1.25A maximum (autoranging)

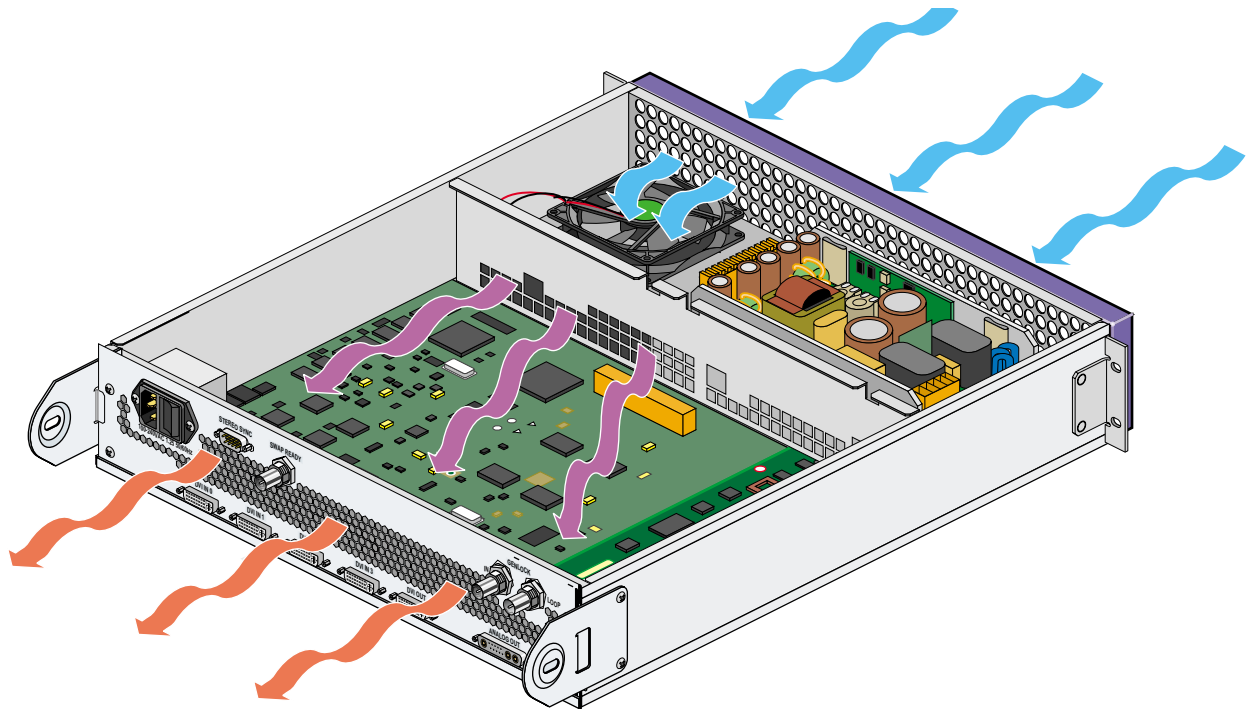
Table 1-1 (continued) Cooling and Power Specifications

Specification	Value per Server
Inrush current	5 Amps maximum
Nominal current draw	0.8 Amps @ 100-120 Vac, 0.4 Amps @ 200 -240 Vac
UPS volt-amp rating	250 VA

As shown in Figure 1-4, the airflow in the scalable graphics compositor chassis flows through the mesh grill at the front of the chassis, through the power supply enclosure, and over the motherboard. The hot air exhausts out the back of the chassis.



Caution: Always keep at least 4 inches (10.2 cm) of clearance at the back of the chassis for cooling.

**Figure 1-4** Chassis Airflow Diagram

Physical and Environmental Specifications

Table 1-2 lists the physical and environmental specifications for the scalable graphics compositor.

Table 1-2 Physical and Environmental Specifications

Specification	Value per Scalable Graphics Compositor
Chassis dimensions	3.5 in. height (2U) x 17.5 in. width x 21 in. length (8.9 cm height [2U] x 44.4 cm width x 52 cm length). Length includes rear BNCs.
Weight (installed)	36 lb (16.4 kg) maximum
Installation orientation	Any, with 4 in. (10.2 cm) clearance at back
Acoustic noise	43 dBA approximate
Air temperature	
Operating	+41 to +95 °F (+5 to +35 °C)
Non-operating	-40 to +149 °F (-40 to +65 °C)
Thermal gradient	
Operating	18 °F (10 °C) per hour (maximum)
Non-operating	108 °F (60 °C) per hour (maximum)
Altitude	
Operating	10,000 ft (3,048 m) MSL (maximum)
Non-operating	40,000 ft (12,192 m) MSL (maximum)
Relative humidity	
Operating	10% to 85%, noncondensing
Non-operating	5% to 95%, noncondensing
Mechanical shock	
Operating	30 G, 3 ms (vertical) 15 G, 3 ms (horizontal)
Non-operating	Critical velocity 200 in/s, critical acceleration 50 G, 11 ms (trapezoidal)
Mechanical vibration	
Operating	0.25 G, 5-500-5 Hz, @ 1 oct/ min
Non-operating	0.5 G, 3-200-3 Hz, @ 1 oct/min

Cabling the Scalable Graphics Compositor

This chapter describes how to cable the scalable graphics compositor connectors to the SGI InfinitePerformance pipes (VPro V12 boards) and display monitors. This chapter includes:

- “Power Switch and Connectors on Rear Panel” on page 7
- “Cabling the Scalable Graphics Compositor Hardware” on page 9



Warning: Before installing, operating, or servicing any part of this product, read the following section: “Safety Instructions” on page 31.



Caution: Before installing and cabling the scalable graphics compositor, see the cooling, power, physical, and environmental specifications in Chapter 1, “Product Description and Specifications.”

Power Switch and Connectors on Rear Panel

Figure 2-1 shows the power switch and connectors on the rear panel of the scalable graphics compositor chassis.

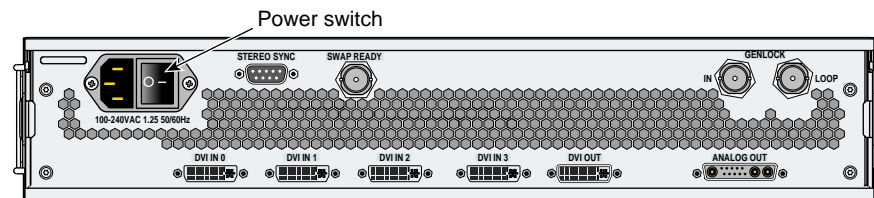


Figure 2-1 Power Switch and Connectors on Rear Panel

Table 2-1 details the functions of the power switch and connectors on the rear panel of the scalable graphics compositor.

Table 2-1 Power Switch and Connectors on Rear Panel

Name	Function
100-240 VAC 1.25 50/60 HZ	This connector is used to connect the compositor to a power source.
Power switch	Press the power switch to the ON (1) position to power on the compositor, and press the power switch to the OFF (0) position to power off the compositor. (The SGI logo on the compositor front panel lights orange when the compositor is powered on and is not lit when the compositor is powered off.)
STEREO SYNC	This connector is used to connect stereo glasses to the compositor. (Stereo glasses can also connect to the stereo sync connectors on the InfinitePerformance pipes.)
SWAP READY	This connector is used to daisy-chain the swap-ready connectors of all the InfinitePerformance pipes to the compositor. 75-ohm BNC cables and BNC T connectors are used to make the connections. The swap-ready is used to synchronize the swap buffers in order to synchronize the InfinitePerformance pipes.
GENLOCK IN	This connector is used to daisy-chain the genlock connectors of all the InfinitePerformance pipes to the compositor. 75-ohm BNC cables and BNC T connectors are used to make the connections. The genlock connections are used to synchronize multiple InfinitePerformance pipes with each other.
GENLOCK LOOP	This connector is used to daisy-chain the genlock function to other compositors. This connector is terminated when its daisy-chaining function is not used.
DVI IN 0	This Digital Video Interface (DVI) connector is used to connect to the leftmost DVI connector of the V-brick InfinitePerformance pipe 0.
DVI IN 1	This Digital Video Interface (DVI) connector is used to connect to the leftmost DVI connector of the V-brick InfinitePerformance pipe 1.
DVI IN 2	This Digital Video Interface (DVI) connector is used to connect with the leftmost DVI connector of the V-brick InfinitePerformance pipe 2.
DVI IN 3	This Digital Video Interface (DVI) connector is used to connect with the leftmost DVI connector of the V-brick InfinitePerformance pipe 3.

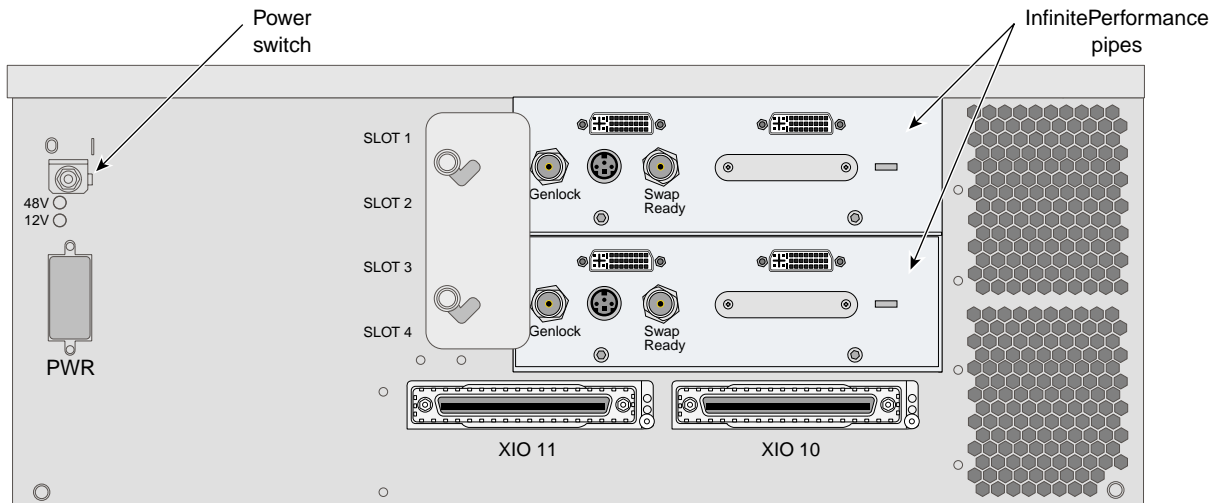
Table 2-1 (continued) Power Switch and Connectors on Rear Panel

Name	Function
DVI OUT	This Digital Video Interface (DVI) OUT connector is used to cable a digital monitor to the compositor.
ANALOG OUT	This connector is used to cable an analog monitor to the compositor.

Cabling the Scalable Graphics Compositor Hardware

This section describes how to cable the SGI InfinitePerformance pipes, which reside in the V-brick(s), to the scalable graphics compositor connectors.

Figure 2-2 shows a V-brick with two InfinitePerformance pipes. See Figure 2-1 and Table 2-1 for the locations and functional descriptions of the rear panel connectors when cabling the compositor.

**Figure 2-2** V-brick with Two InfinitePerformance Pipes

To install the scalable graphics compositor, follow these steps. Although you can connect fewer pipes, it is assumed that you are connecting four InfinitePerformance pipes to the compositor.

1. Be sure that the compositor power switch on the rear panel is in the OFF **(0)** position and that it is not connected to a power source.
2. Gather the following cables and other cabling items most of which are shown in Figure 2-3:
 - Four DVI single-link cables
 - Eight 75-ohm BNC cables
 - Six BNC T connectors
 - One 75-ohm BNC terminator
 - One digital monitor cable (not shown)
 - One analog monitor cable (not shown)
 - One power cable for the compositor (appropriate for local power source)

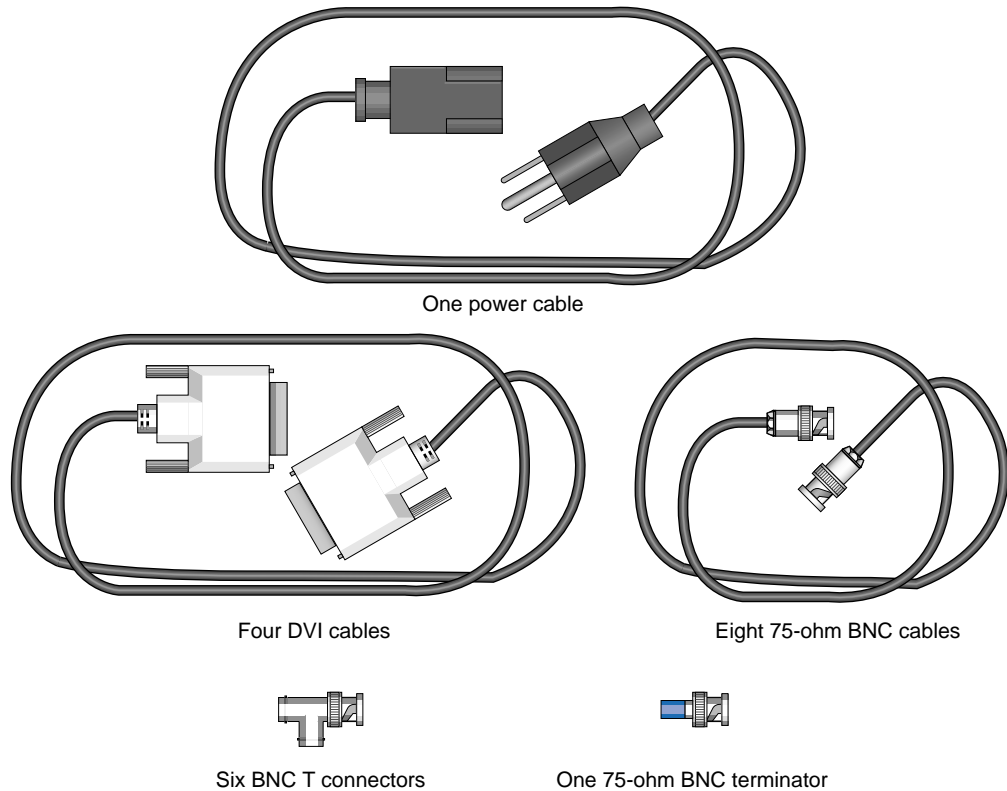


Figure 2-3 Cables and Other Cabling Items Needed for Installation

3. Using DVI single-link cables, connect the leftmost DVI connectors of the InfinitePerformance pipes to the compositor DVI connectors in the following order (as shown in Figure 2-4):
 - a. Connect the leftmost DVI connector on the InfinitePerformance pipe 0 to the leftmost DVI IN 0 connector on the compositor.
 - b. Connect the leftmost DVI connector on the InfinitePerformance pipe 1 to the compositor DVI IN 1 connector.
 - c. Connect the leftmost DVI connector on the InfinitePerformance pipe 2 to the compositor DVI IN 2 connector.
 - d. Connect the leftmost DVI connector on the InfinitePerformance pipe 3 to the compositor DVI IN 3 connector.

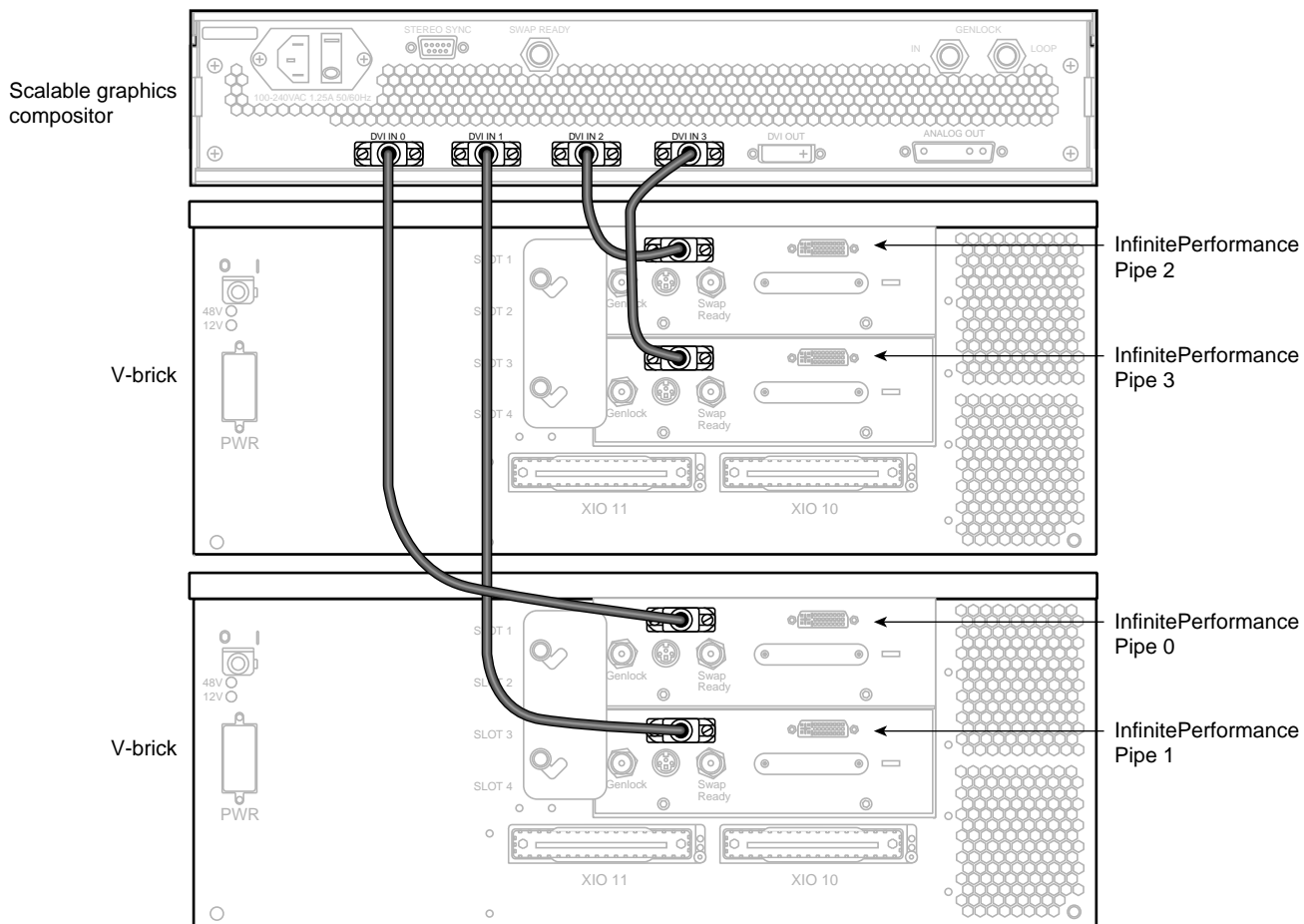


Figure 2-4 Connecting the DVI Connectors

4. Using the 75-ohm BNC cables and the BNC T connectors, daisy-chain the InfinitePerformance swap-ready connectors to each other, and then connect the last connector to the swap-ready connector on the compositor in the following order (as shown in Figure 2-5): pipe 0 to pipe 1, pipe 1 to pipe 2, pipe 2 to pipe 3, and pipe 3 to the swap-ready connector on the compositor.

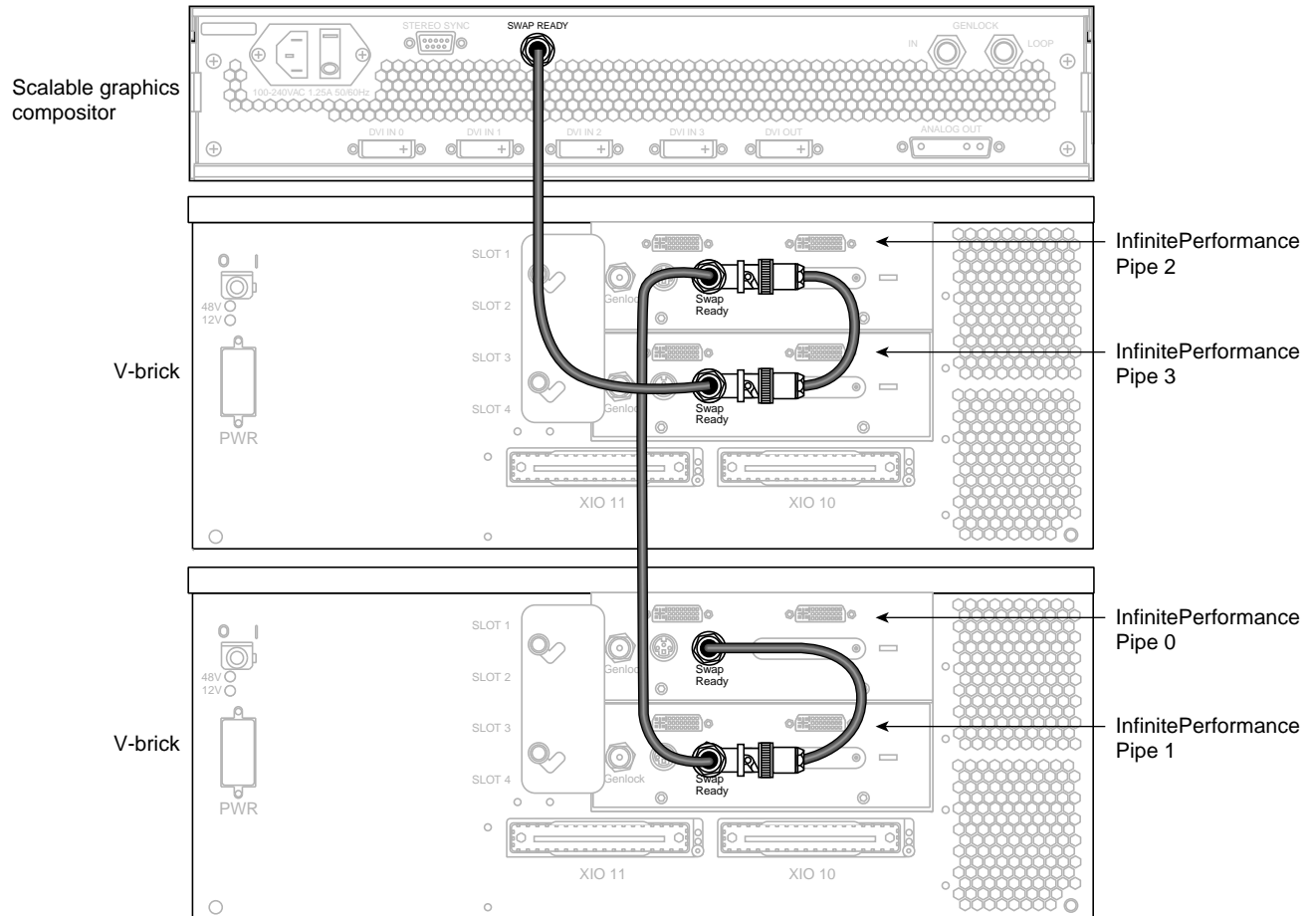


Figure 2-5 Connecting the Swap-Ready Connectors

5. Using the 75-ohm BNC cables and the BNC T connectors, daisy-chain the InfinitePerformance genlock connectors to each other, and then connect the last genlock connector to the genlock-in connector on the compositor in the following order (as shown in Figure 2-6): pipe 0 to pipe 1, pipe 1 to pipe 2, pipe 2 to pipe 3, and pipe 3 to the genlock-in connector on the compositor.
6. Connect the 75-ohm BNC terminator to the genlock-loop connector shown in Figure 2-6.

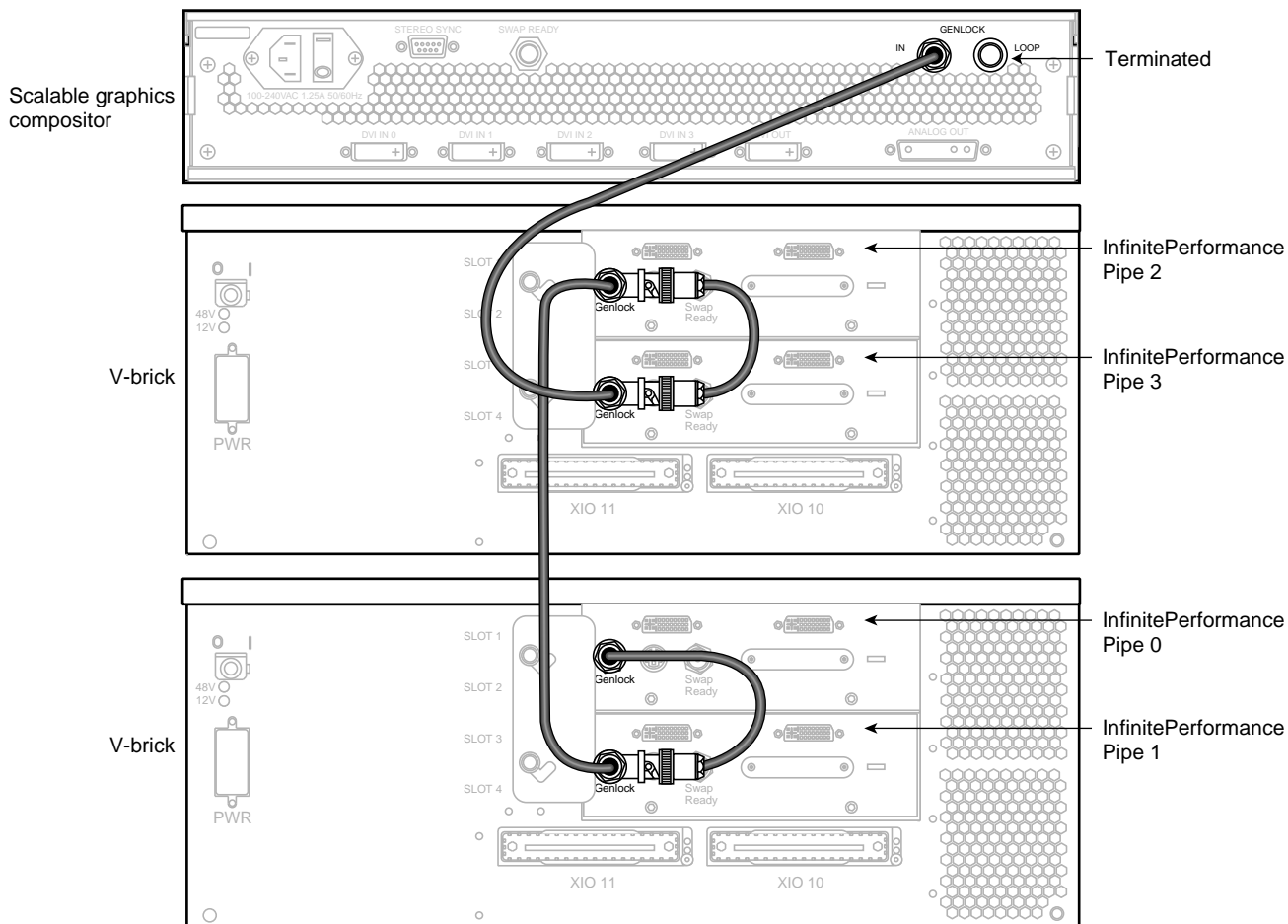


Figure 2-6 Connecting the Genlock Connectors

7. As is applicable to your cabling installation, connect the following items to the compositor (as shown in Figure 2-7):
 - a. If you are connecting to a digital monitor, first make sure that your digital monitor is powered off and not connected to a power source. Then connect the DVI OUT connector on the compositor to your digital monitor.
 - b. If you are connecting an analog monitor, first make sure that your analog monitor is powered off and not connected to a power source. Then connect the ANALOG OUT connector on the compositor to your analog monitor.
 - c. If you are connecting stereo glasses to the compositor, connect the glasses to the STEREO SYNC connector on the compositor.
8. Connect one end of the power cord to the compositor power plug and the other end of the cord to your AC power source.
9. Connect your monitor(s) to a power source as described in your monitor installation guides.
10. Press the compositor power switch to the ON **(1)** position.
11. Boot the SGI host system.
12. Power on your monitors as described in your monitor user guides.
13. Proceed to Chapter 3, “Configuring the Scalable Graphics Compositor” for instructions to configure the compositor.

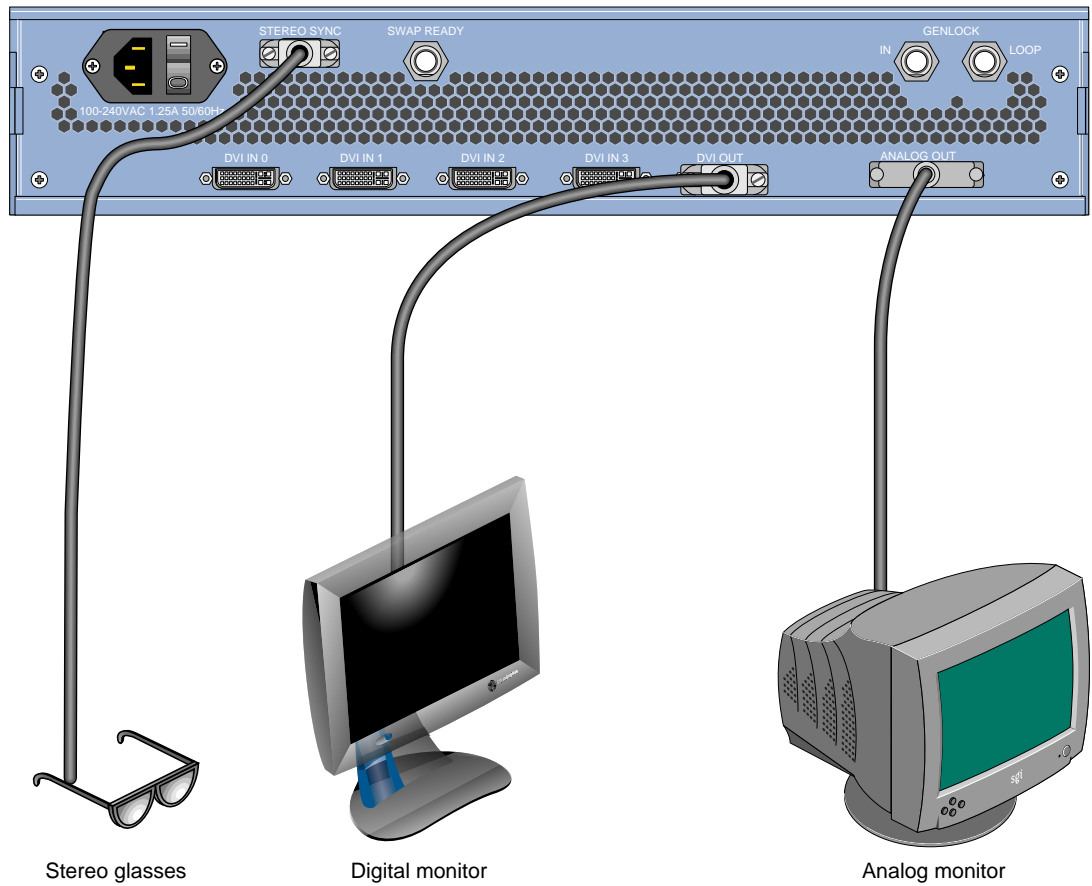


Figure 2-7 Connecting to Digital and Analog Monitors

Configuring the Scalable Graphics Compositor

You can use the `Sgcombine` utility to configure the scalable graphics compositor. You can also use the `Sgcombine` utility to set up all the SGI InfinitePerformance pipes connected to the compositor and to set up the compositor video output.

Note: If you are a software developer, you can also configure the scalable graphics compositor with programs accessed through the `GLX_SGIX_Hyperpipe` GLX extension. Enter `man hyperpipe` at your system console for more information on `GLX_SGIX_Hyperpipe`.

To use the `Sgcombine` utility, enter `/usr/gfx/sgcombine` at your IRIX user prompt. Figure 3-1 shows the main window of the `Sgcombine` utility.

The **Sgcombine** main window displays the combined output area from the various inputs from the InfinitePerformance pipes connected to the scalable graphics compositor. From the main window, you can do the following:

- Select the video format of the display combined by the compositor. The format options appear as follows: `1280x1024_60.vfo`. The first number identifies the width of the display, the second number identifies the height, and the third number indicates how many times per second the display will refresh itself. The format selected must be compatible with the monitor you will be connecting to the scalable graphics compositor.
- Select initial tiling settings to determine how you want to combine the InfinitePerformance pipe display inputs to the combined output display on the monitor.
- Select the device (InfinitePerformance pipe or external device) that generates the master sync signal. The other devices must synchronize with this signal.
- Select video properties for your compositor configuration that meet the requirements of the video monitor you will be using.

The following is a sample configuration procedure that details all the possible configuration selections. When you perform the actual configuration, you can select **Download** at any time during the configuration procedure after you have selected the video format. This downloads the configuration to your hardware. The configuration settings take effect only after the configuration is downloaded.

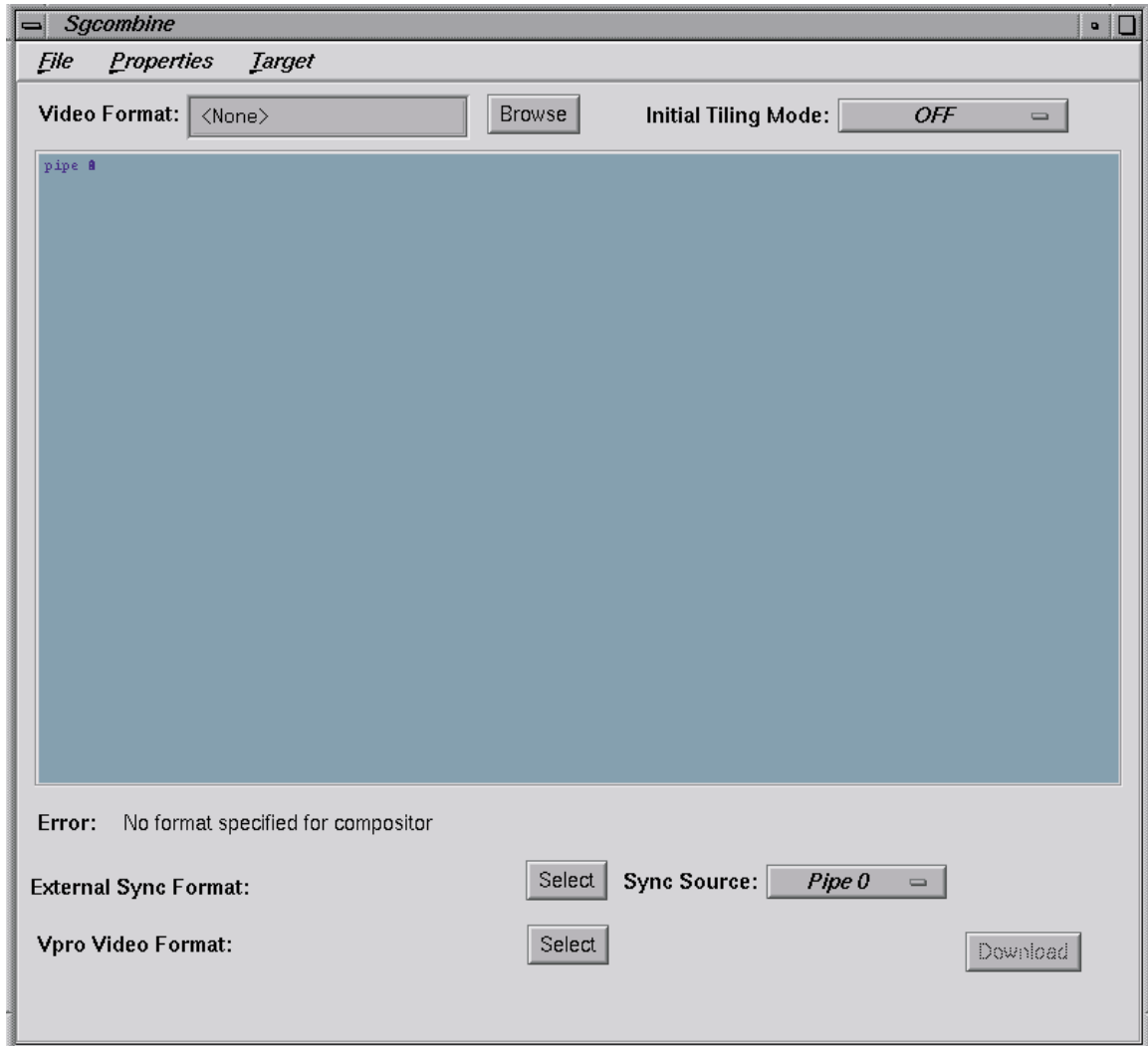


Figure 3-1 Sgcombine Main Window

To configure the scalable graphics compositor, follow these steps (Perform steps one through three for a simple configuration, and perform all the steps for a more detailed configuration.):

1. Select **Browse** from the main window to see the **Select Format** window shown in Figure 3-2. Select a video format for the compositor by following these steps:
 - a. Select a video format from the **Files** field. The options appear as follows: 1280x1024_60.vfo. The first number identifies the width of the display, the second number identifies the height, and the third number indicates how many times per second the display will refresh itself. This third number appears as **Frame Rate** and **Swap Rate** in the dialog box. **Frame Rate** is how many times the screen will be scanned per second, and the **Swap Rate** is how many times per second the displayed graphics will change.
 - b. After you have highlighted the format you want, click **OK**. Once you click **OK**, the format selected appears on the **External Sync Format** field and on the **Vpro Video Format** field on the main window.

In the **External Sync Format** field, you can select a video format from an external sync device different from the scalable graphics compositor video format. However, you must select a video format with the same frame rate and the same number of total video lines as the scalable graphics compositor video format.

In the **Vpro Video Format** field, you can select a video format for the VPro (V12 board) that is different from the scalable graphics compositor video format. You must select a video format with the same frame rate and the same number of total video lines as the scalable graphics compositor video format.

Note: You will see an error message in the **Error** field if the video format selected for the **External Sync Format** or the **Vpro Video Format** is not compatible with the scalable graphics compositor video format.

Note: The **Error** field indicates any error with the current format configuration selected. If there is no error with the selection, the **Error** field displays **None**. A common error occurs when the frame rates selected do not match. This indicates that the format selected for the InfinitePerformance pipe (V12 board) does not work with the video format selected for the scalable graphics compositor. These two formats must be similar.

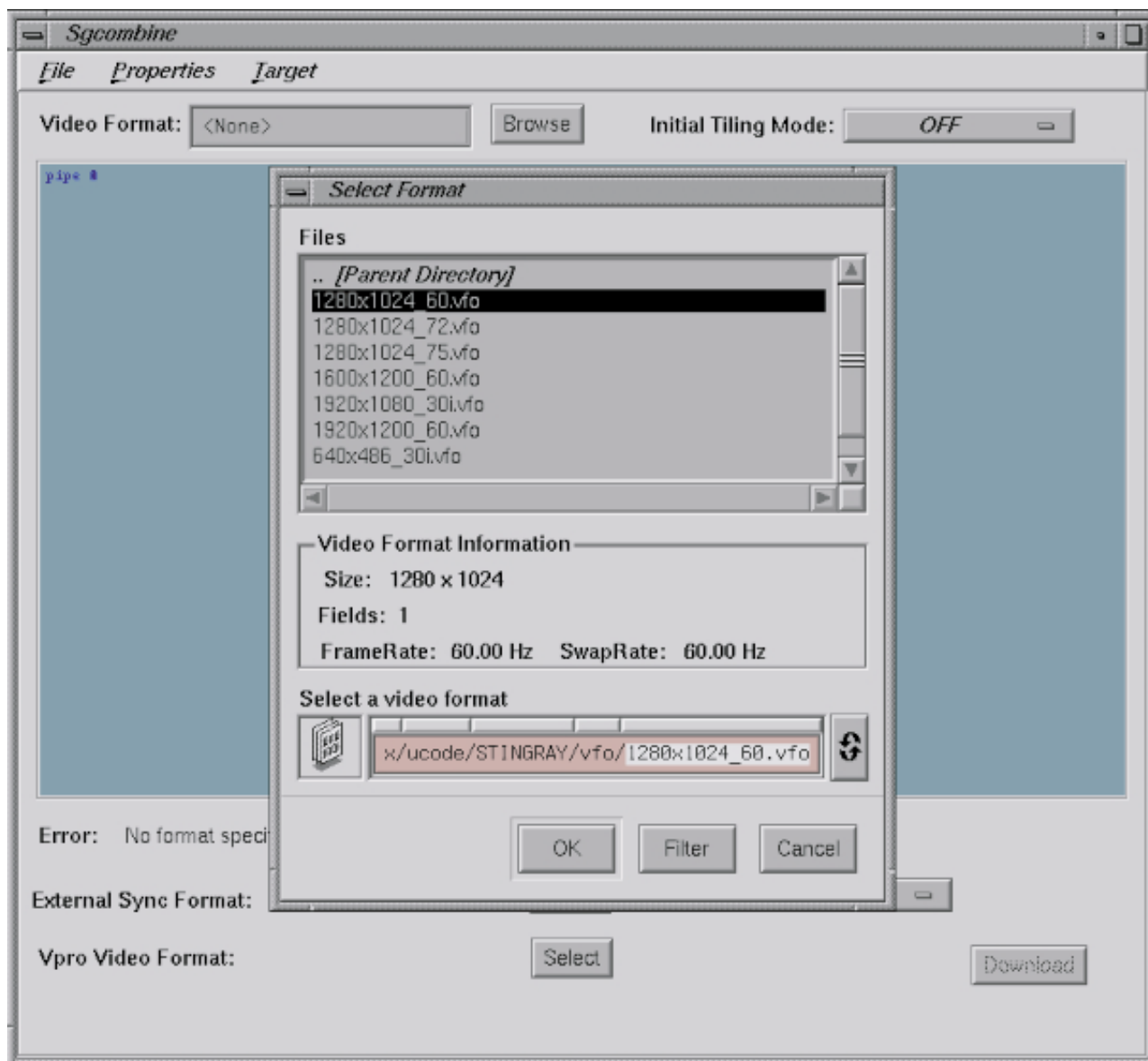


Figure 3-2 Select Format Window

-
2. In the **Initial Tiling Mode** field, select how you want to divide the composite display screen area as follows:
 - **Quadrants:** This selection divides the screen into four display areas. (This selection works only if you have inputs from four InfinitePerformance pipes.) Each InfinitePerformance pipe controls one quadrant of visual space that contributes to the whole display surface. Figure 3-3 shows an example of how the screen display can be divided with the **Quadrants** selection.
 - **Horizontal Stripe:** This selection divides the display area into two horizontal areas if you have inputs from two InfinitePerformance pipes. If you have inputs from four InfinitePerformance pipes, this selection divides the display area into four horizontal areas.
 - **Vertical Stripe:** This selection divides the display area into two vertical areas if you have inputs from two InfinitePerformance pipes. If you have inputs from four InfinitePerformance pipes, this selection divides the display area into four vertical areas.
 - **Pixel Average:** This selection combines the inputs from the InfinitePerformance pipes connected to the compositor and displays an average of those inputs. (This selection works only if you have inputs from four InfinitePerformance pipes.) This selection can be used for anti-aliasing (smoothing out of jagged edges on items on a display).
 3. After you have selected the initial tiling mode, you can use the default configuration settings or proceed to the next steps to configure more of the settings for the compositor. If you want to stop your configuration at this point, select the **Download** button from the **Sgcombine** main window to download your configuration to the hardware.

Note: The configuration settings take effect only after the configuration is downloaded.

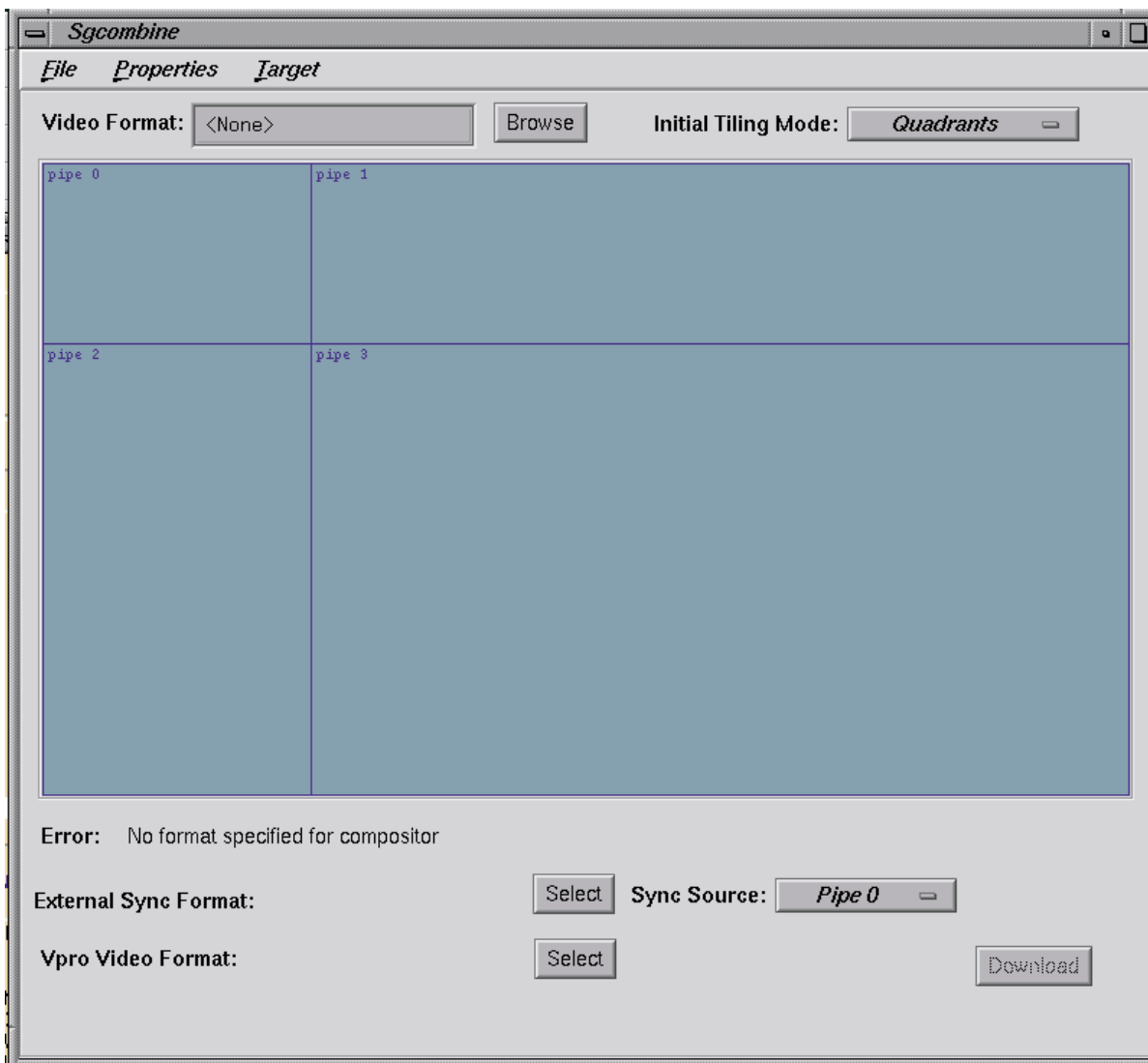


Figure 3-3 Example of Initial Tiling Mode (Quadrant)

-
4. In the **Sync Source** field, you can select the device (InfinitePerformance pipe or other device) that generates the master sync signal. The other devices must synchronize with this signal. (For this release, only InfinitePerformance pipes connect to the scalable graphics compositor; therefore, an InfinitePerformance pipe provides the master sync signal - InfinitePerformance pipe 0 is the default.)
 5. From the **Sgcombine** main window, select **Properties**, and then select **Tiling Properties**, to see the **Tiling Properties** window shown in Figure 3-4. Select options as follows:
 - a. In the **Initial Tiling Mode** field, you can select the initial tiling mode as you did in the **Initial Tiling Mode** field on the **Sgcombine** main window. Your most recent entry on either of these two fields overrides the previous entry.
 - b. In the **Number of Pipes** field, you can select how many InfinitePerformance pipes you want to contribute to the final composite screen display.
 - c. In the **Size** and **Origin** fields, you can set the width and height for the visual contribution of each pipe.

Note: You can also use your mouse on the tiled configuration window to move your area selections for each pipe.

After you have finished your configuration selections, select **Close** to close the **Tiling Properties** window.

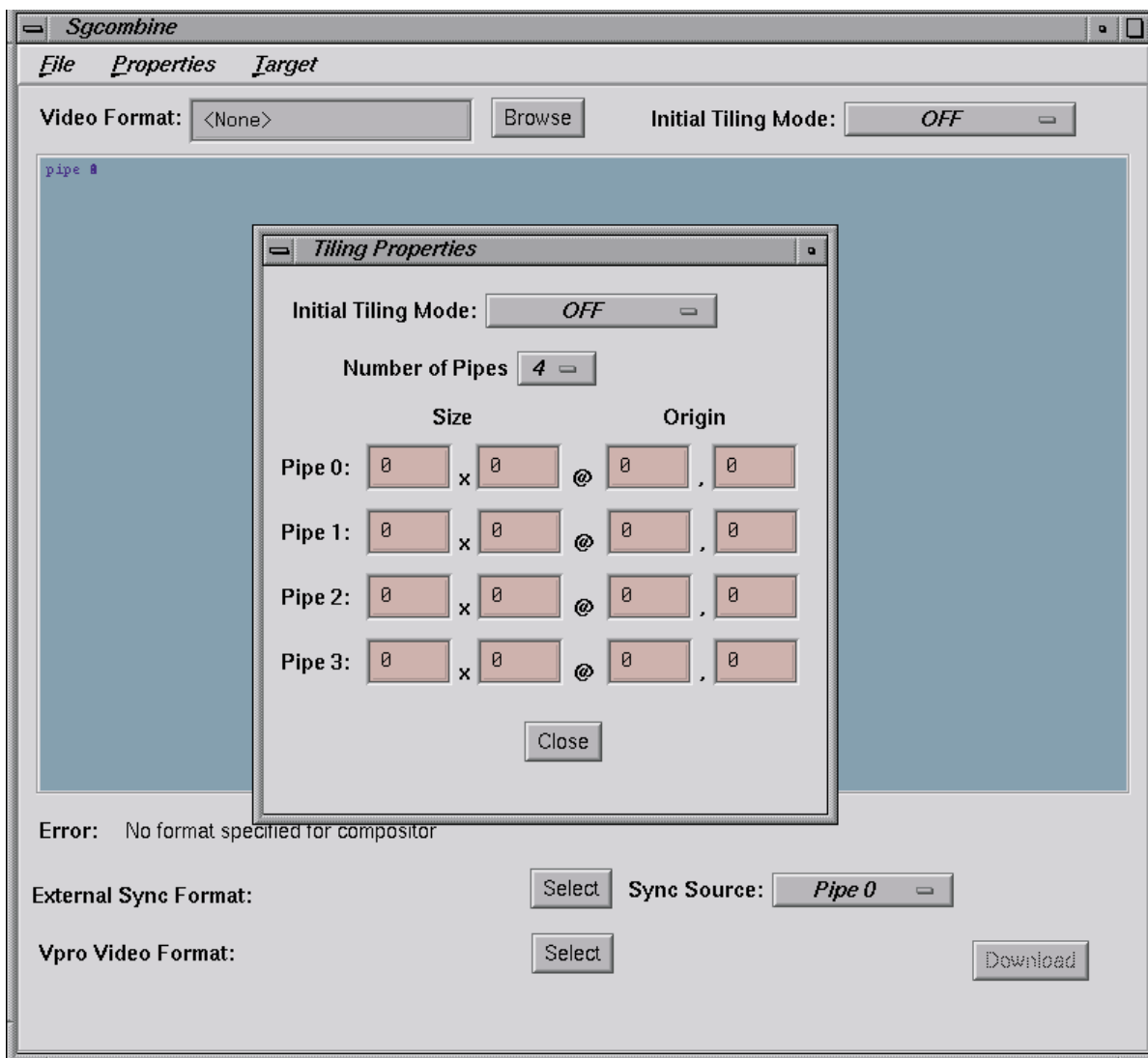


Figure 3-4 Tiling Properties Window

-
6. From the **Sgcombine** main window, select **Properties**, and then select **Video Properties**, to see the **Video Properties** window shown in Figure 3-5. From this window, you can configure the output video so that it is compatible with your video monitor, as follows:
 - a. In the **Format** field, you can select the video format for the compositor as you did with the **Video Format** field on the **Sgcombine** main window. Your most recent video format entry on either of these two fields overrides the previous entry.
 - b. In the **Sync Component** field, you can select if you want composite sync (information that tells the display where to put the graphics) to run on the **R** (red), **G** (green), or **B** (blue) wire.
 - c. In the **Sync Output** field, you can set the display output to either **Horizontal** or **Composite**. If your monitor device requires separate horizontal and vertical set signals, select **Horizontal**. If your monitor device requires combined horizontal and vertical signals, select **Composite**.
 - d. In the **H/C Sync Polarity** (horizontal/composite polarity) field, you can set the horizontal/composite sync signals to **Positive** or **Negative**. Select **Positive** if you want the video data to be present when the signals are low. Select **Negative** if you want the video data to be present when the signals are high.
 - e. In the **VSync Polarity** (vertical sync polarity) field, you can set the vertical sync signals to **Positive** or **Negative**. Select **Positive** if you want the video data to be present when the signals are low. Select **Negative** if you want the video data to be present when the signals are high.
 7. After you have finished all your compositor configuration selections, select **Download** from the **Sgcombine** main window to download the configurations to the hardware.

Note: The configuration settings take effect only after the download is complete.

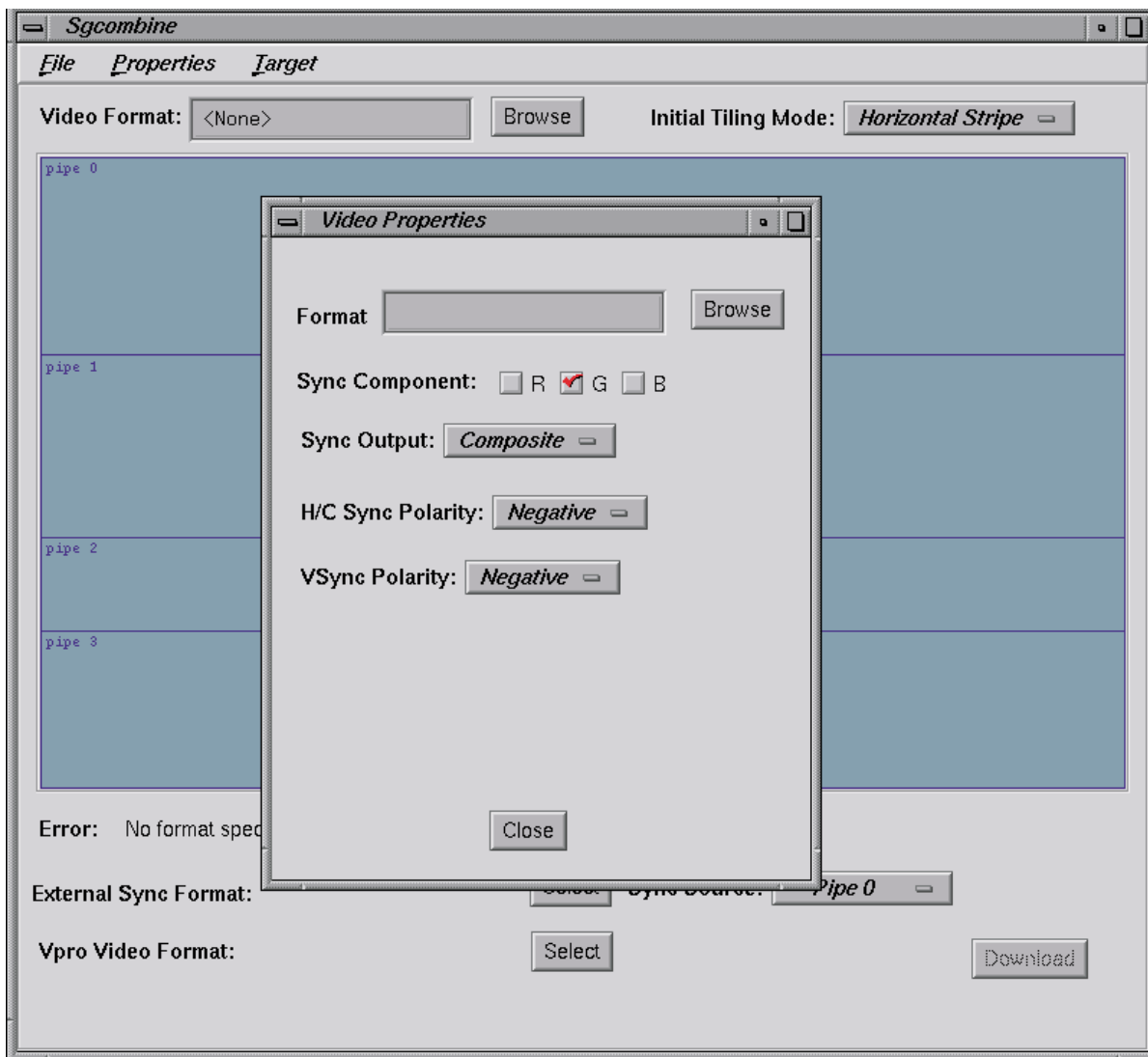


Figure 3-5 Video Properties Window

Regulatory Specifications

This appendix provides regulatory information related to the use of the scalable graphics compositor in the United States and other countries.

Manufacturer's Regulatory Declarations



Caution: This device has several governmental and third-party approvals, licenses, and permits. Do not modify this product in any way that is not expressly approved by SGI. If you do, you may lose these approvals and your governmental agency authority to operate this device.

The device conforms to several national and international specifications and European Directives listed on the Manufacturer's Declaration of Conformity. The CE insignia displayed on each device is an indication of conformity to the European requirements.

CMN Number

The scalable graphics compositor model number, or CMN number, is on the system label on the chassis.

To obtain the Manufacturer's Declaration of Conformity from SGI, you must either provide the CMN number to your local SGI sales representative, or contact the Technical Assistance Center at +1-800-800-4SGI.

Class A Compliance

This equipment complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.



Caution: Changes or modifications to the equipment not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Electromagnetic Emissions

This device complies with the Class A limits of Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

Also, this device complies with Class A electromagnetic emissions limits of C.I.S.P.R. Publication 22, Limits and Methods of Measurement of Radio Interference Characteristics of Information Technology Equipment.

Japanese Notice

この装置は、情報処理装置等電波障害自主規制協議会 (VCCI) の基準に基づくクラス A 情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

Industry Canada Notice (Canada Only)

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique n'émet pas de perturbations radioélectriques dépassant les normes applicables aux appareils numériques de Classe A prescrites dans le Règlement sur les interférences radioélectriques établi par le Ministère des Communications du Canada.

CE Notice

Marking by the "CE" symbol indicates compliance of the device to directives of the European Community. A "Declaration of Conformity" in accordance with the standards has been made and is available from SGI upon request.

Radio and Television Interference

The equipment described in this guide generates and uses radio frequency energy. If it is not installed and used in accordance with the instructions in this guide, it can cause radio and television interference.

This equipment has been tested and it complies with the limits for a Class A computing device in accordance with the specifications in Part 15 of FCC rules. These specifications are designed to provide reasonable protection against such interference in an industrial or office installation. However, there is no guarantee that the interference will not occur in a particular installation. This system is not certified for home use.

You can determine whether your system is causing interference by turning it off. If the interference stops, it was probably caused by the workstation or one of the peripherals. To tell if the interference is caused by one of the peripherals, try disconnecting one peripheral at a time to see if the interference stops. If it does, that peripheral is the cause of the interference.

If your workstation does cause interference to radio or television reception, try to correct the interference by following one or more of these suggestions:

- Turn the television or radio antenna until the interference stops.
- Move the workstation to one side or the other of the radio or television.
- Move the workstation farther away from the radio or television.
- Plug the workstation into an outlet that is on a different circuit from the radio or television. (That is, make certain the workstation and the radio or television are on circuits controlled by different circuit breakers or fuses.)
- For additional information, see the FCC Web site at:
<http://www.fcc.gov/cib/Publications/tvibook.html>

Shielded Cables

The device is FCC-compliant under test conditions that include the use of shielded cables between the workstation and its peripherals. Your workstation and any peripherals you purchase from SGI have shielded cables. Shielded cables reduce the possibility of interference with radio, television, and other devices. If you use any cables that are not from SGI, be sure they are shielded. Telephone cables do not need to be shielded.

Electrostatic Discharge

SGI designs and tests its products to be immune to the effects of electrostatic discharge (ESD). ESD is a source of electromagnetic interference and can cause problems ranging from data errors and lockups to permanent component damage.

Note: While operating your workstation, keep all covers and doors, including the plastics, in place. The shielded cables included with the workstation and its peripherals should be installed correctly, with all thumbscrews fastened securely.

An ESD wrist strap is included with some products, such as memory and graphics upgrades. The wrist strap is used when installing these upgrades to prevent the flow of static electricity, and it should protect your system from ESD damage.

Safety Instructions

Read these instructions carefully:

1. Follow all warnings and instructions marked on the product and noted in this and other documentation included with the product.
2. Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
3. Do not use this product near water.
4. Do not place this product or components of this product on an unstable cart, stand, or table. This product may fall, causing serious damage to the product.
5. Slots and openings on the cabinets and components of the product are provided for ventilation, reliable operation, and protection from overheating of the product. These slots and openings must not be blocked or covered. This product should never be placed near or over a radiator or heat register, or in a built-in installation unless proper ventilation is provided.
6. This product should be operated from the type of power indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.
7. Do not allow anything to rest on the power cord. Do not locate this product where people may walk on the cord.

8. Do not use extension cords with your SGI system.
9. Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.
10. Do not attempt to service this product yourself except as noted in this guide. Opening or removing covers of internal components may expose you to dangerous voltage points or other risks. Refer all servicing to qualified service personnel.
11. Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
 - When the power cord or plug is damaged or frayed.
 - If liquid has been spilled into the product.
 - If the product has been exposed to rain or water.
 - If the product does not operate normally when the operating instructions are followed. Adjust only those controls that are covered by the operating instructions, because improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal condition.
 - If the product has been dropped or the cabinet has been damaged.
 - If the product exhibits a distinct change in performance, indicating a need for service.
12. Use only the proper type of power supply cord set (provided with the system) for this unit.

Index

A

- AC input, 4
- acoustic noise, 6
- air temperature, 6
- altitude, 6
- analog, 15
- analog monitors, 9
 - installation, 15

C

- cables
 - needed for installation, 10-11
 - shielded, 30
- cabling, 7-16
- CE Notice, 27, 29
- chassis
 - and airflow, 5
 - dimensions, 6
- Class A compliance, 28
- CMN number, 27
- compliance, 28
- configuration
 - compatible with monitor, 17, 25
 - configurable functions, 17
 - downloading, 18, 21, 25
 - error field, 19
 - frame rate, 19
 - initial tiling, 17, 21, 23
 - main window, 18

- master sync signal device, 17, 23
- quadrant initial tiling mode option, 22
- select format window, 20
- Sgcombine utility, 17-26
- swap rate, 19
- tiling properties, 23, 24
- video format, 17
- video properties, 17, 25, 26

- connectors, 7-9
- cooling and power specifications, 4-5
- customer service, xiii

D

- digital monitors, 9
 - installation, 15
- downloading compositor configuration, 18, 21, 25
- DVI connections, 11

E

- electromagnetic emissions, 29
- electromagnetic interference, 31
- electrostatic discharge, 31
- environmental and physical specifications, 6
- error field, 19
- ESD wrist strap, 31
- European regulatory notice, 27, 29
- external sync format field
 - video format from external device, 19

F

- features, 3
- files field
 - video format configuration, 19
- format field
 - video properties, 25
- frame rate
 - video format configuration, 19
- front panel, 3

G

- genlock connections, 3, 8, 14

H

- H/C sync polarity field
 - video properties configuration, 25
- horizontal stripe
 - initial tiling mode option, 21

I

- InfinitePerformance, xi
- InfinitePerformance pipes, xi, 1, 2, 3, 7-14, 17, 21, 23
- initial tiling, 17, 21, 23
- inrush current, 5
- installation, 10-15
 - cables and items needed, 10-11
 - DVI connections, 11
 - genlock connections, 14
 - monitors, 15
 - orientation, 6
 - stereo glasses, 15-16
 - swap-ready connections, 13

J

- Japanese regulatory notice, 29

M

- Manufacturer's Declaration of Conformity, 27
- master sync signal device, 17, 23
- mechanical shock, 6
- mechanical vibration, 6
- monitors, 15
 - analog, 9
 - analog installation, 15
 - configuration compatibility, 17, 25
 - digital, 9
 - digital installation, 15

N

- nominal current draw, 5
- number of pipes field
 - tiling properties configuration, 23

P

- physical and environmental specifications, 6
- pixel average
 - initial tiling mode option, 21
- power and cooling specifications, 4-5
- power switch, 7, 8
- product support, xiii

Q

- quadrants
 - initial tiling mode option, 21, 22

R

radio interference, 30
 rear panel, 4, 7-8
 regulatory specifications, 27-31
 relative humidity, 6

S

safety instructions, 7
 scalable graphics compositor
 and airflow, 5
 cables for installation, 10-11
 cabling, 7-16
 configuration. *See* configuration
 configuration procedure, 19-26
 description, 1-4
 dimensions, 6
 features, 3
 front panel, 3
 installation, 10-15
 power switch, 7, 8
 rear panel, 4, 7-8
 tiling properties configuration, 21-23
 video properties configuration, 25
 select format window
 configuration, 20
 video format configuration, 19
 Sgcombine utility. *See* configuration
 shielded cables, 30
 shock, 6
 size and origin field
 tiling properties configuration, 23
 specifications
 cooling, 4-5
 environmental, 6
 physical, 6
 power, 4-5
 regulatory, 27-31

stereo glasses, 8, 15-16
 swap rate
 video format configuration, 19
 swap-ready connections, 3, 8, 13
 sync component field
 video properties configuration, 25
 sync output field
 video properties configuration, 25

T

technical support, xiii
 television interference, 30
 thermal gradient, 6
 tiling properties configuration, 21-24
 initial tiling, 21, 23
 number of pipes field, 23
 size and origin field, 23

U

UPS volt-amp rating, 5

V

vertical stripe
 initial tiling mode option, 21
 vibration, 6
 video format configuration, 17
 external sync format field, 19
 files field, 19
 frame rate, 19
 select format window, 19
 swap rate, 19
 Vpro video format field, 19

- video properties configuration, 17, 25-26
 - format field, 25
 - H/C sync polarity field, 25
 - sync component field, 25
 - sync output field, 25
 - VSync polarity field, 25
- Vpro video format field
 - video format for V12 board, 19
- VSync polarity field
 - video properties configuration, 25
- V-brick
 - with InfinitePerformance pipes, 1, 9

W

- wrist strap, 31