# Pacific C-HSS
HDMI to SDI Converter with Scaler

AVITECH

**ABOUT THIS MANUAL**
This manual contains information on using the Avitech Pacific C-HSS converter. There are two chapters in this manual.

✓ **Getting Started** introduces the features and specifications as well as the external components of the Pacific C-HSS.

✓ **System Configuration** discusses the steps on using the LCD panel to set up the Avitech Pacific C-HSS, as well as using the proprietary Avitech ScreenCrop utility.

The following conventions are used throughout the manual to distinguish elements of text.

*provides additional hints or information that requires special attention.*

*identifies warnings which must be strictly followed.*

Any name of a menu, command, icon or button on the screen is shown in a bold typeset. For example: On the **Start** menu select **Settings**.

To assist us in making improvements to this user manual, we welcome any comments and constructive criticism. Please send all such – in writing to: sales@avitechvideo.com.

**WARNING**
Do not attempt to disassemble the Pacific converter module(s). Doing so may void the warranty. There are no serviceable parts inside. Please refer all servicing to qualified personnel.

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# Contents

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**Dansk (Danish)**
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Dit product is in navolging van de bepalingen van Europees Directief 1999/5/EC.

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## Statement of Compliance

This product complies with Australia and New Zealand's standards for radio interference.

# 1. Getting Started

Pacific C-HSS allows conversion of signal source from HDMI/DVI/VGA/SDI (3G/HD/SD) and CVBS (NTSC/PAL) to SDI (3G/HD/SD) with scaling. A compact, stand-alone converter with integrated scaling and cropping features, the Pacific C-HSS is ideal for production, OB vans, post-production, and television broadcasts. It provides automatic video input format detection and supports a wide variety of video resolutions.

This chapter introduces the features and specifications as well as the external components of Avitech Pacific C-HSS.

## 1.1 Package Contents



**Avitech Pacific C-HSS**



**Utility Disc (software and user manual)**



**12 V DC 2.5A Power Adapter**



**Magnetic Foot Stand with Screws (4 pcs)**



**DVI-I to VGA Adapter**



**DVI-I to YPbPr Adapter (optional)**

**Table 1-1** Package Contents

## 1.2   Product Features

Pacific C-HSS is capable of converting and scaling a wide variety of signals into high quality SDI signals. It can sense the following input signals automatically: HDMI/DVI/VGA  SDI (3G/HD/SD)  CVBS (NTSC/PAL), then convert and scale the signal to a user-defined SDI signal (3G/HD/SD). It features a "DVI-D LOOP OUT"* port so that an external display can be connected to monitor the signal entering the "DVI-I IN" port.

Pacific C-HSS also supports area of interest cropping through its LCD interface and via a network connection. Additionally, Avitech's ScreenCrop utility** software can monitor the broadcast output of all networked Pacific devices and can support multiple instances of area of interest cropping.

For television broadcast applications, the Pacific C-HSS supports genlock function (refer to section 2.1.2) with timing offset controls, and the embedding of analog stereo audio into the SDI output with a user defined time delay. Moreover, color space conversion compensation is also available.***

*\* DVI-D loop out does not support analog source signals; VGA or YPbPr (through VGA or YPbPr to DVI adapter).*
*\** Image/video crop, aspect ratio, output resolution, device name and IP address adjustments are also supported by the Avitech ScreenCrop.*
*\*** It is only functional when used with the Pacific C-SHS.*

## 1.3  Specifications

| Input | |
|---|---|
| **SDI/CVBS (BNC connector)** | Automatic sensing SDI (3G/HD/SD)  CVBS (NTSC/PAL):<br>❖ *NTSC/PAL*<br>❖ *SD-SDI (SMPTE 259M): 525i60, 625i50*<br>❖ *HD-SDI (SMPTE 292M): 720p50, 720p59.94, 720p60, 1080i50, 1080i59.94, 1080i60*<br>❖ *3G-SDI (SMPTE 424M): 1080p23.97, 1080PsF24, 1080p25, 1080p29.97, 1080p30, 1080p50, 1080p59.94, 1080p60* |
| **HDMI (HDMI type A)** | Automatic sensing for the following input signals are supported:<br>❖ *640x480, 60Hz/75Hz*<br>❖ *720×400, 70Hz*<br>❖ *800x600, 50Hz/60Hz/75Hz*<br>❖ *1024x768, 50Hz/60Hz/75Hz*<br>❖ *1280x960, 50Hz/60Hz*<br>❖ *1280x1024, 50Hz/60Hz/75Hz*<br>❖ *1360x765, 50Hz/60Hz*<br>❖ *1400x1080, 50Hz/60Hz*<br>❖ *1600x1200, 50Hz/60Hz*<br>❖ *1680x1050, 50Hz/60Hz*<br>❖ *1920x1080, 50Hz/60Hz*<br>❖ *1920x1200, 50Hz/60Hz* |
| **DVI-I (DVI-I connector)** | Automatic sensing for the following input signals are supported:<br>❖ *640x480, 60Hz/75Hz*<br>❖ *720×400, 70Hz*<br>❖ *800x600, 50Hz/60Hz/75Hz*<br>❖ *1024x768, 50Hz/60Hz/75Hz*<br>❖ *1280x960, 50Hz/60Hz*<br>❖ *1280x1024, 50Hz/60Hz/75Hz*<br>❖ *1360x765, 50Hz/60Hz*<br>❖ *1400x1080, 50Hz/60Hz*<br>❖ *1600x1200, 50Hz/60Hz*<br>❖ *1680x1050, 50Hz/60Hz*<br>❖ *1920x1080, 50Hz/60Hz*<br>❖ *1920x1200, 50Hz/60Hz* |
| **VGA/YPbPr (via adapter)** | Automatic sensing via adapter in DVI-I IN port supports the following input signals:<br>❖ *800x600, 50Hz/60Hz*<br>❖ *1024x768, 50Hz/60Hz*<br>❖ *1280x960, 50Hz/60Hz*<br>❖ *1280x1024, 50Hz/60Hz*<br>❖ *1360x765, 50Hz/60Hz*<br>❖ *1400x1080, 50Hz/60Hz*<br>❖ *1600x1200, 50Hz/60Hz*<br>❖ *1680x1050, 50Hz/60Hz*<br>❖ *1920x1080, 50Hz/60Hz*<br>❖ *1920x1200, 50Hz/60Hz*<br>*If the refresh rate is other than 60Hz, the image could become out of alignment. In the case, use the "VGA Adjustment" features to realign.* **H START**, **V START**, **H ACTIVE**, **V ACTIVE**, *and* **H TOTAL** *(refer to page 10 "Image Adjustment" for details).* |
| **Genlock (BNC connector)** | Frame synchronizer (REF IN port) |
| **Audio (Phono jack)** | Analog audio (AUDIO IN port, stereo)<br>AES/EBU (embedded) |

| **Input** | |
|---|---|
| **Ethernet (RJ45 connector)** | When using Avitech ScreenCrop utility or performing advanced operations (IP port) |

| **Output** | |
|---|---|
| **SDI (BNC connector)** | User Configurable (support SMPTE 259M, 292M, and 424M at YCbCr 4:2:2/4:4:4 or RGB 4:4:4, 10-bit): <br> ❖ *SD-SDI: 487i59.94, 576i50* <br> ❖ *HD-SDI: 720p23.98, 720p24, 720p25, 720p29.97, 720p30, 720p50, 720p59.94, 720p60, 1080i23.98PsF, 1080i24PsF, 1080i50, 1080i59.94, 1080i60* <br> ❖ *3G-SDI: 1080p23.98, 1080p24, 1080p25, 1080p29.97, 1080p30, 1080p50, 1080p59.94 1080p60* <br> SDI Embedded Audio (SDI OUT port) |
| **DVI-D Loopout (DVI-D connector)** | Looping output of the DVI-I input (non-configurable and not available for VGA or YPbPr signal through DVI adapter): <br> ❖ *640x480, 60Hz/75Hz* <br> ❖ *720×400, 70Hz* <br> ❖ *800x600, 50Hz/60Hz/75Hz* <br> ❖ *1024x768, 50Hz/60Hz/75Hz* <br> ❖ *1280x960, 50Hz/60Hz* <br> ❖ *1280x1024, 50Hz/60Hz/75Hz* <br> ❖ *1360x765, 50Hz/60Hz* <br> ❖ *1400x1080, 50Hz/60Hz* <br> ❖ *1600x1200, 50Hz/60Hz* <br> ❖ *1680x1050, 50Hz/60Hz* <br> ❖ *1920x1080, 50Hz/60Hz* <br> ❖ *1920x1200, 50Hz/60Hz* |

| **Others** | |
|---|---|
| **Power** | Power consumption is less than 15W <br> Power Supply: <br> ❖ *Input (AC): 100 to 250V* <br> ❖ *Output (DC): 12V adapter* |
| **Dimensions/ Weight** | Dimensions, 141×181×28 mm (5.6×7.1×1.1 inch) <br> Weight, 0.5 kg (1.1 lb) |
| **Environment/ Safety** | Temperature: <br> ❖ *Operating: 0 ℃ (32 ℉) to 40 ℃ (104 ℉)* <br> ❖ *Storage: – 10 ℃ (14 ℉) to 50 ℃ (122 ℉)* <br> Humidity, 0% to 80% relative, non-condensing <br> Safety, FCC/CE/C-Tick/Class B |

**Table 1-2** Specifications
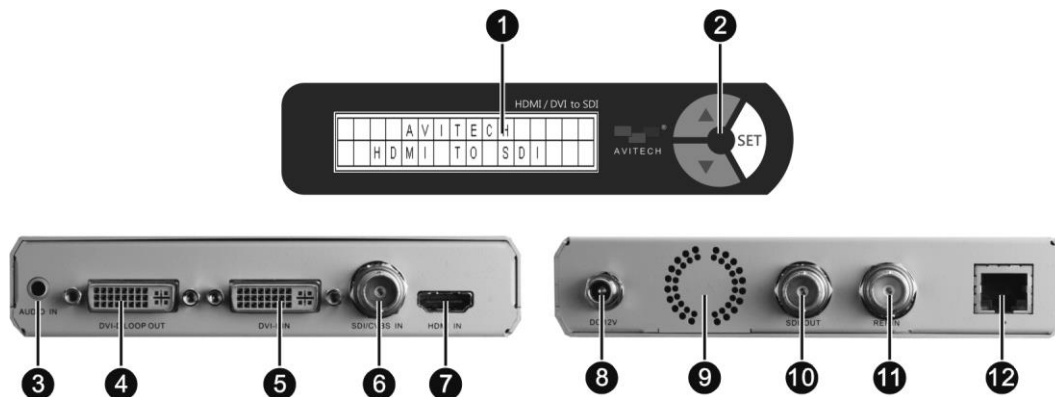
## 1.4   Connections to the Pacific C-HSS



**Figure 1-1** Pacific C-HSS Components

| LCD Panel | |
|---|---|
| ❶ **LCD Panel** | To display the configuration and control parameters |
| ❷ **Control Buttons** | ▲   Go to previous selection<br>▼   Go to next selection<br>SET   Enter next level or select the item |

| Left Side Panel | |
|---|---|
| ❸ **AUDIO IN** | Connects to an analog audio input |
| ❹ **DVI-D LOOP OUT** | DVI connector for DVI video out loop (output signal coming from DVI-I IN port only)*<br>*Note: Often used for preview when the connected desktop computer is only capable of supporting a single display output* |
| ❺ **DVI-I IN** | DVI connector for DVI/VGA/YPbPr input sources (a DVI to VGA adapter or DVI to YPbPr adapter may be required) |
| ❻ **SDI/CVBS IN** | BNC connector for SDI (3G/HD/SD)  CVBS (NTSC/PAL) video sources |
| ❼ **HDMI IN** | HDMI connector for HDMI input source** |

*\* DVI-D loop out does not support analog source signals; VGA or YPbPr (through VGA or YPbPr to DVI adapter).*
*\*\* To comply with the HDCP license agreement, any source with HDCP encryption cannot be converted to SDI.*

| Right Side Panel | |
|---|---|
| ❽ **Power (DC 12V)** | Connects to the 12 V DC/2.5A power adapter |
| ❾ **System Fan** | Contains the system fan* |
| ❿ **SDI OUT** | BNC connector supports SDI (3G/HD/SD) signal output |
| ⓫ **REF IN** | Multi-format sync reference input (YPbPr/NTSC/PAL) for genlock function (frame synchronizer) |
| ⓬ **Ethernet (IP)** | Allows a computer to control the Pacific C-HSS through a network connection via an Ethernet cable.<br>(use with Avitech's ScreenCrop utility) |

**Table 1-3** Pacific C-HSS Component Description

*\* Do not cover or block the ventilation openings.*

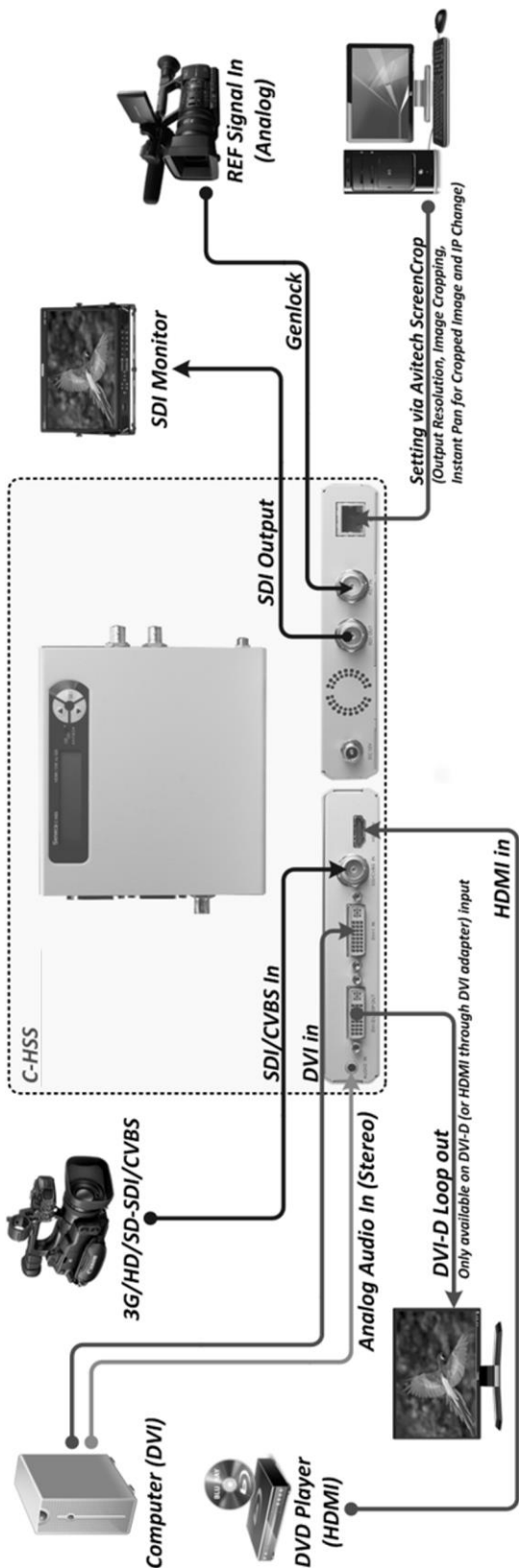The following figure shows a sample connection of Pacific C-HSS and application.



**Figure 1-2** Typical Connection and Application

# 2. System Configuration

This chapter discusses the process of using the LCD panel to set up the Pacific C-HSS, as well as the procedure for using the Avitech ScreenCrop utility.

## 2.1 Using the LCD Panel

Consisting of 3 buttons, the LCD panel allows for complete control of the Pacific C-HSS. This control includes input/output signal adjustment, video crop, keying/overlay, aspect ratio adjustments and an operational status report.

▲   Go to previous selection (up arrow button)
▼   Go to next selection (down arrow button)
SET  Enter the next level of a menu, or select the currently highlighted item.
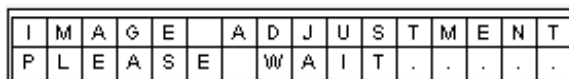


**Figure 2-1** LCD Panel: Busy State

⚠  1.  *When the busy state "**PLEASE WAIT . . . .**" message is displayed on the LCD panel (see sample screen above), **DO NOT** disconnect or connect any signal cables as an error may occur.*
2.  *Also, **DO NOT** change any of the incoming signal's display resolutions while the Pacific C-HSS is in the busy state.*

### 2.1.1  Welcome Screen

Upon starting up the LCD panel, the welcome screen is shown for about 15 seconds.
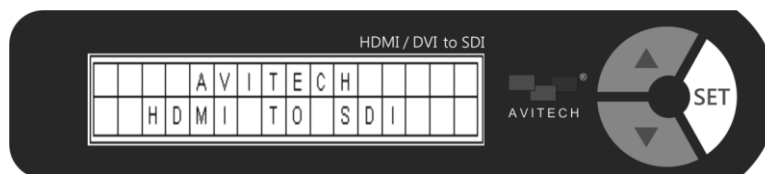


**Figure 2-2** LCD Panel: Welcome Screen

Then the following default screen is displayed.
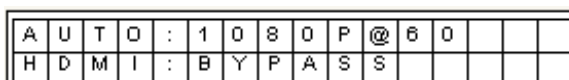


**Figure 2-3** LCD Panel: Default Initial Screen

📄  *This screen displays the unit's default settings.*
1.  *First line (video): **AUTO**matically selects the input signal in the following order (firstly CVBS, SDI, YPbPr, VGA, DVI, and lastly HDMI) when it detects more than one signal type.*
   *Then, the SDI receives the output at **1080P @ 60**Hz.*
2.  *Second line (audio): The default audio source is set to **HDMI**. The audio feature allows the selection of audio signal source (HDMI, SDI, or LINE IN). The audio delay feature shows **BYPASS**ed when there is no audio delay.*

⚠  *Settings made through the LCD panel will be saved automatically upon turning off the Pacific.*

### 2.1.2  Navigating the Main Menu

1.  Press the SET button from the default initial screen to enter the main menu.
2.  Use the buttons on the front panel to navigate: (▲ / ▼ / SET)
3.  There are a number of tables below, each detailing an item on the main menu (Input Port, Output… etc.). Each table lists the choices that can be made within each item.

| Input Port | |
|---|---|
| Autoscan | **On:** enables the automatic detection feature. <br> **Off:** selects the signal manually. <br> ❖ *Source:* <br> ✓ *HDMI* <br> ✓ *DVI* <br> ✓ *VGA* <br> ✓ *YPbPr* <br> ✓ *SDI* |
| **DVI Loop Out** | **On:** enables the DVI-D loop out feature. <br> **Off:** disables the DVI-D loop out feature. |
| **Exit** | Exits the input signal setup menu. |

**Table 2-1** Input Port

📄 *DVI-D loop out does not support analog source signals; VGA or YPbPr (through VGA or YPbPr to DVI adapter).*

⚠️ *Make sure to select the correct signal type based on the actual connected input signal to Pacific C-HSS in order to avoid image display problems (e.g., noise, flicker, etc.).*

| Output | |
|---|---|
| **SDI** | **On:** selects the output signal. <br> ❖ *1080p @ 23.98, 24, 25, 29.97, 30, 50, 59.94, 60 (Hz)* <br> ❖ *1080i @ 23.98 PsF, 24 PsF, 50, 59.94, 60 (Hz)* <br> ❖ *720p @ 23.98, 24, 25, 29.97, 30, 50, 59.94, 60 (Hz)* <br> ❖ *SD_625 (576i @ 50 Hz)* <br> ❖ *SD_525 (487i @ 59.94 Hz)* <br> **Off:** disables the SDI out feature. |
| **Exit** | Exits the output signal setup menu. |

**Table 2-2** Output

| Map Structure | |
|---|---|
| **Status** | Selects the desired "sampling structure/pixel depth" based on output signal's "image format" and "frame/field rate." <br> ❖ *YCbCr422* <br> ❖ *YCbCr444* <br> ❖ *RGB444* |
| **Exit** | Exits the map structure setup menu. |

**Table 2-3** Map Structure

📄 *1. Embedded audio is **not** available under the YCbCr444 and RGB444 output formats.*
*2. Map structure is locked at YCbCr422 when output resolution is at SD_525, SD_625, 1080p @50, 1080p @59.94, 1080p @60 (Hz).*

| Image Adjustment | |
|---|---|

| | |
|---|---|
| | **On:** selects the output signal |
| | ❖ ***Source:*** *auto-detects CVBS, SDI, YPbPr, VGA, DVI, HDMI in that order* |
| | ❖ ***VGA Adjustment:*** *this feature was designed to re-adjust analog VGA signal in the case of misalignment or a color-off due to long cabling situations.* |
| | <u>*Note*</u>*: Only available when the signal is VGA.* |
| | ✓ ***DEFAULT*** |
| | ✓ ***HSTART*** *(horizontal starting position)* |
| | ✓ ***VSTART*** *(vertical starting position)* |
| | ✓ ***HACTIVE*** *(horizontal "active area" / width)* |
| | ✓ ***HTOTAL*** *(horizontal total) \*\*\*\*(refer to figure 2-4 below)* *Make sure that the values of **HSTART** plus **HACTIVE** do not exceed **HTOTAL**.* |
| | ✓ ***VACTIVE*** *(vertical "active area" / height)* |
| | ✓ ***VTOTAL****: (vertical total) \*\*\*\*(refer to figure 2-4 below)* *Make sure that the values of **VSTART** plus **VACTIVE** do not exceed **VTOTAL**.* |
| | ✓ ***REDGAIN*** |
| | ✓ ***GREENGAIN*** |
| | ✓ ***BLUEGAIN*** |
| | ✓ ***AUTO ADJUST*** *(performs automatic alignment of VGA image inside the window)* |
| | ✓ ***AUTO GAIN*** *(performs automatic gain adjustment by correcting the color values)* |
| **Status** | ❖ ***CVBS/YPbPr Adjustment:*** *feature is for re-adjusting CVBS or YPbPr signal in the case of misalignment or a color-off due to long cabling situations.* |
| | <u>*Note*</u>*: Only available when the signal is CVBS or YPbPr.* |
| | ✓ ***DEFAULT*** |
| | ✓ ***HSTART*** *(horizontal starting position)* |
| | ✓ ***VSTART*** *(vertical starting position)* |
| | ✓ ***HACTIVE*** *(horizontal active area or width)* |
| | ✓ ***H TOTAL*** *(horizontal total) \*\*\*\*(refer figure 2-4 below)* *Make sure that the values of **H START** plus **H ACTIVE** do not exceed **H TOTAL**.* |
| | ✓ ***VACTIVE*** *(vertical active area or height)* |
| | ✓ ***V TOTAL****: (vertical total) \*\*\*\*(refer figure 2-4 below)* *This value is based on the values of **VSTART** plus **VACTIVE**. (<u>Note</u>: must not exceed the pre-determined value for V Total).* *Make sure that the values of **VSTART** plus **VACTIVE** do not exceed **VTOTAL**.* |
| | ❖ ***Image Parameter:*** |
| | ✓ ***BRIGHTNESS*** |
| | ✓ ***CONTRAST*** |
| | ✓ ***SATURATION*** *(only available when signal is CVBS, or YPbPr, or SDI, or HDMI)* |
| | ✓ ***HUE*** *(only available for CVBS, or YPbPr, or SDI, or HDMI signal)* |
| | ✓ ***SHARPNESS*** |
| | ✓ ***DEFAULT*** |
| | **Off:** disables the image adjustment feature. |
| **Exit** | Exits the image adjustment setup menu. |

**Table 2-4** Image Adjustment

1. *Image misalignment will most likely occur when the VGA signal is in the 50Hz timing frequency range and the less commonly used resolutions in the 60Hz timing frequency range.*
   a) *When switching between VGA resolution signals that have similar timing frequency (horizontal and vertical frequency, vertical total), image misalignment may occur.*
   b) *e.g., 1280×1024 60Hz change to 1400×1050 60Hz (adjust HSTART/VSTART/HACTIVE/VACTIVE) and then back to 1280×1024 60Hz (the original timing frequency is very close to that of 1400×1050 60Hz, use HSTART/VSTART/HACTIVE/VACTIVE to re- adjust for 1280×1024 60Hz again).*
2. *Depending on the signal type, **SATURATION** and **HUE** can only be set for YUV color space.*
   a) *YUV is a color space typically used as part of a color image pipeline. It is used to encode a color image or a video that takes human perception into account, it allows reduced bandwidth for chrominance components. This enables transmission errors or cause compression artifacts to be more efficiently masked by the human perception than using a "direct" RGB-representation.*
   b) *When HDMI signal is transmitting under YCbCr422 color space (set from HDMI device itself), the Pacific C-HSS will enable the **SATURATION** and **HUE** function in **IMAGE PARAMETER** menu. If it is under YCbCr444 color space, the above functions will be disabled.*
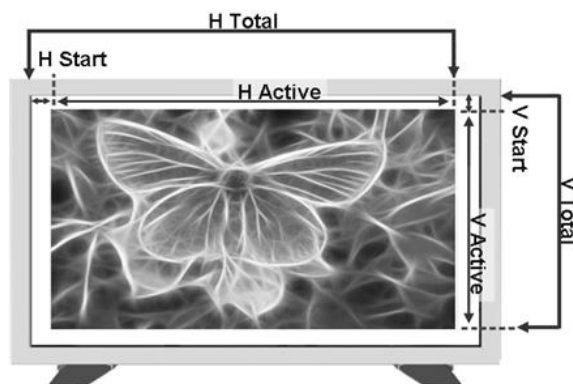


**Figure 2-4** H-Start, H-Active, H-Total, V-Start, V-Active, V-Total

| Crop Image | |
|---|---|
| **Status** | **On:** adjusts the crop area and location. <br> ❖ **LEFT**: sets the horizontal starting point. <br> ❖ **TOP**: sets the vertical starting point. <br> ❖ **RIGHT**: sets the horizontal ending point. <br> ❖ **BOTTOM**: sets the vertical ending point. <br> ❖ **DEFAULT** <br> **Off:** disables the crop image feature. |
| **Exit** | Exits the crop image setup menu. |

**Table 2-5** Crop Image

1. *The **CROP IMAGE** feature will be turned **OFF** when **KEYING** feature is enabled.*
2. *Make sure the difference in value for **LEFT** compared with the **RIGHT** is not less than 20% (e.g., **LEFT** = **80.0% RIGHT** = **100.0%**). Likewise, the difference in value for **TOP** compared to the **BOTTOM** must not be less than 20% (e.g., **TOP** = **80.0% BOTTOM** = **100.0%**). To put it simply, the smallest crop size that is valid is 20% of the total height by 20% of the total width.*

| Aspect Ratio | |
|---|---|
| **Status** | **On:** sets the display's aspect ratio.<br>❖ *4:3*<br>❖ *16:9*<br>❖ *AUTO*<br>❖ *CUSTOM*<br>　　*1* to *20* for width ratio : *1* to *20* for height ratio.<br>**Off:** disables the aspect ratio detect feature. |
| **Exit** | Exits the aspect ratio setup menu. |

**Table 2-6** Aspect Ratio

*1. The **ASPECT RATIO** feature will be turned **OFF** when **KEYING** feature is enabled.*
*2. When the width is greater than the height, the width cannot be more than 6 times the value of the height. (6:1 ratio)*
*3. Likewise, when the height is greater than the width, the height cannot be more than 6 times the value of the width. (1:6 ratio)*

| Keying (Overlay) | |
|---|---|
| **Status** | **On:** superimposes the inserted computer image on top of an existing video signal. This feature works best with green screens and virtual sets.<br>❖ ***CROP IMAGE:*** *sets the crop area parameters.*<br>❖ ***OUTPUT WINDOW:*** *sets output video range.*<br>❖ ***BACKGROUND COLOR:*** *sets background color range (RGB)*<br>❖ ***DEFAULT***<br>**Off:** disables the keying feature. |
| **Exit** | Exits the keying setup menu. |

**Table 2-7** Keying

*1. The **KEYING** feature will be turned **OFF** when the **CROP IMAGE** or the **ASPECT RATIO** features are enabled.*
*2. Make sure that **KEYING** is disabled (**OFF**) before running the Avitech ScreenCrop utility.*
*3. The **CROP IMAGE** parameters within the **KEYING** menu are the same as those shown in table 2-5 (**LEFT, TOP, RIGHT, BOTTOM**).*

| Color Correct(ion) | |
|---|---|
| **Status** | **On:** enables the color correction feature.<br>**Off:** disables the color correction feature. |
| **Exit** | Exits the color correction setup menu. |

**Table 2-8** Color Correction

*Make sure to enable (set **ON**) the **COLOR CORRECT** function when connecting to the Pacific C-SHS.*

| Genlock | |
|---|---|
| **Status** | **On**: synchronizes the video sources **DVI-I IN**, **SDI/CVBS IN**, and the **HDMI IN** port's signal with the **REF IN** port signal.<br>❖ *GENLOCK OUTPUT*: refer to table 2-10 for more details on supported output standard.<br>❖ *TIMING OFFSET*: sets the delay lines.<br>  ✓ *for SD 525 signal up to 524 delay lines*<br>  ✓ *for SD 625 signal up to 624 delay lines*<br>  ✓ *for 720p signal up to 749 delay lines*<br>  ✓ *for 1080p or 1080i signal up to 1124 delay lines*<br>**Off**: disables the genlock feature. |
| **Exit** | Exits the genlock setup menu. |

**Table 2-9** Genlock

*The genlock feature requires a sync reference signal to enter the **REF IN** port. Changing or disconnecting the sync reference will cause the Pacific to automatically turn off genlock.*

| Reference Input Standard | 525 | 625 | 720p60 | 720p59.94 | 720p50 | 720p30 | 720p29.97 | 720p25 | 720p24 | 720p23.98 | 1080i60 | 1080i59.94 | 1080i50 | 1080p60 | 1080p59.94 | 1080p50 | 1080p30 | 1080p29.97 | 1080p25 | 1080p24 | 1080p23.98 | 1080psf24 | 1080psf23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 525 | ✔ | | | ✔ | | | | | | | | ✔ | | | ✔ | | | | | | | | |
| 625 | | ✔ | | | ✔ | | | | | | | | ✔ | | | ✔ | | | | | | | |
| 480p59.94 | | | | ✔ | | | | | | | | ✔ | | | ✔ | | | | | | | | |
| 576p50 | | | | | ✔ | | | | | | | | ✔ | | | ✔ | | | | | | | |
| 720p60 | | | ✔ | | | | | | | | ✔ | | | ✔ | | | | | | | | | |
| 720p59.94 | ✔ | | | ✔ | | | | | | | | ✔ | | | ✔ | | | | | | | | |
| 720p50 | | ✔ | | | ✔ | | | | | | | | ✔ | | | ✔ | | | | | | | |
| 720p30 | | | ✔ | | | ✔ | | | | | ✔ | | | ✔ | | | ✔ | | | | | | |
| 720p29.97 | ✔ | | | ✔ | | | ✔ | | | | | ✔ | | | ✔ | | | ✔ | | | | | |
| 720p25 | | ✔ | | | ✔ | | | ✔ | | | | | ✔ | | | ✔ | | | ✔ | | | | |
| 720p24 | | | | | | | | | ✔ | | | | | | | | | | | ✔ | | ✔ | |
| 720p23.98 | | | | | | | | | | ✔ | | | | | | | | | | | ✔ | | ✔ |
| 1080p60 | | | ✔ | | | | | | | | ✔ | | | ✔ | | | | | | | | | |
| 1080p59.94 | ✔ | | | ✔ | | | | | | | | ✔ | | | ✔ | | | | | | | | |
| 1080p50 | | ✔ | | | ✔ | | | | | | | | ✔ | | | ✔ | | | | | | | |
| 1080p30 | | | ✔ | | | ✔ | | | | | ✔ | | | ✔ | | | ✔ | | | | | | |
| 1080p29.97 | ✔ | | | ✔ | | | ✔ | | | | | ✔ | | | ✔ | | | ✔ | | | | | |
| 1080p25 | | ✔ | | | ✔ | | | ✔ | | | | | ✔ | | | ✔ | | | ✔ | | | | |
| 1080p24 | | | | | | | | | ✔ | | | | | | | | | | | ✔ | | ✔ | |
| 1080p23.98 | | | | | | | | | | ✔ | | | | | | | | | | | ✔ | | ✔ |
| 1080i60 | | | ✔ | | | | | | | | ✔ | | | ✔ | | | | | | | | | |
| 1080i59.94 | ✔ | | | ✔ | | | | | | | | ✔ | | | ✔ | | | | | | | | |
| 1080i50 | | ✔ | | | ✔ | | | | | | | | ✔ | | | ✔ | | | | | | | |
| 1080psf24 | | | | | | | | | | | | | | | | | | | | | | ✔ | |
| 1080psf23 | | | | | | | | | | | | | | | | | | | | | | | ✔ |

**Table 2-10** Genlock Output

| Color Bar | |
| --- | --- |
| Status | **On**: enables the color bar and pattern select feature.<br>    ❖ *COLOR BAR*<br>    ❖ *2×2 CROSSHATCH*<br>**Off**: disables the color bar feature. |
| Exit | Exits the color bar setup menu. |

**Table 2-11** Color Bar

📄 *1. The color bar and the 2x2 Crosshatch can only be turned on/off when there is no input signal.*
*2. The default setting is for the color bar to be activated whenever there is no input signal.*
*3. The color bar feature is a pattern generator that shows a signal when there is no source. It can be used as a self-test pattern for input signal or for verifying other devices.*

| Audio | |
| --- | --- |
| Status | **On**: enables the audio output.<br>    ❖ *SOURCE: selects the audio source.*<br>        ✓ *HDMI*<br>        ✓ *LINE IN*<br>        ✓ *SDI*<br>    ❖ *DELAY: sets the delay times.*<br>        ✓ *0 to 170ms, sample rate at 48kHz.*<br>    ❖ *BYPASS*<br>**Off**: disables the audio output. |
| Exit | Exits the audio setup menu. |

**Table 2-12** Audio

| Setup | |
| --- | --- |
| Backlight | **On**: enables the LCD panel's backlight.<br>**Off**: disables the LCD panel's backlight. |
| Contrast | Sets the LCD panel's contrast from **1** to **16**. |
| Idle Time | **On**: scrolling text (conversion format and related frame rate) will appear when the LCD panel of Pacific C-HSS is idle.<br>    ❖ *15 mins*<br>    ❖ *30 mins*<br>    ❖ *45 mins*<br>    ❖ *60 mins*<br>**Off**: disables the scrolling text feature. |
| Reset | **On**: resets to default setting, system reboot is required.<br>**Off**: present setting. |
| BIOS Version | Shows the current firmware version for reference. |
| IP Address | Allows user to modify the **IP ADDRESS**, **SUBNET MASK**, and **GATEWAY** based on Ethernet environment. |
| Exit | Exits the setup menu. |

**Table 2-13** Setup

## 2.2 Using the Avitech ScreenCrop Utility

⚠️ 1. *This utility can only be used with the Windows operating system.*
2. *This utility's cropping feature cannot be used when **KEYING** is enabled (**Status: ON**) in the LCD panel.*

📄 ***For ScreenCrop to display correctly:***
1. *When using a computer that does not support dual displays, make sure to use a DVI cable (or a HDMI cable with a HDMI-to-DVI® adapter) for the **DVI-I IN** port of Pacific to receive the signal. Next, connect a second monitor to the **DVI-D LOOP OUT** port of the Pacific.*
2. *When using a computer with a built-in monitor such as a laptop or an all in one computer or when using a computer that supports dual display outputs, then you can connect to the Pacific C-HSS simply through the **HDMI IN** port.*

The Pacific C-HSS comes with a windows-based user interface called ScreenCrop. Avitech's ScreenCrop utility is easy to use and hosts several powerful tools that includes:

✓ *Live Pan Preview*
✓ *Area of Interest cropping (supports 2 instances)*
✓ *Cropped-area scaling*
✓ *Easy adjustment of the output resolution and timing*
✓ *The ability to control up to 153 Pacific converters through an Ethernet connection*

With ScreenCrop utility:

✓ *Easily air Microsoft PowerPoint presentations and other computer-based content.*
✓ *Selects and scales YouTube windows to fit any broadcast output resolution.*
✓ *Crops out extraneous interface toolbars and broadcasts clean Google Earth maps.*
✓ *Outputs any video stream playing on any media player, such as QuickTime, VLC, or Windows Media Player.*
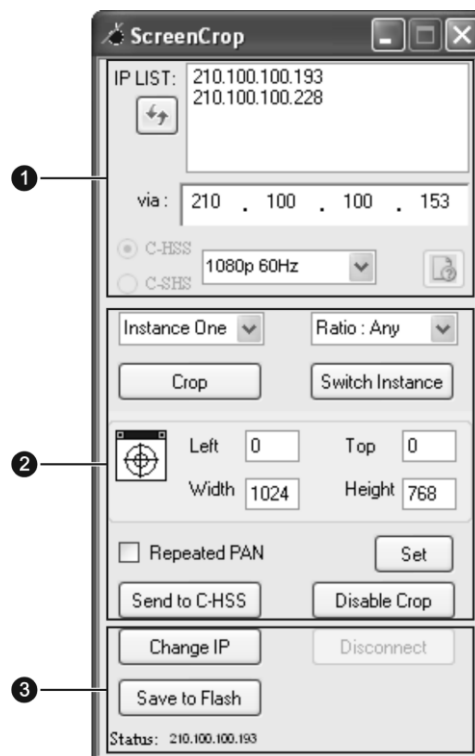
### 2.2.1 ScreenCrop Utility Control Panel



**Figure 2-5** ScreenCrop Utility Control Panel

**Status Information (1)**

| | |
|---|---|
| **IP LIST** | Displays all detected Avitech's Pacific converters in the same network mask. The status button ⬚ becomes active (not grayed-out) when Pacific C-HSS/C-SHS is selected from the IP LIST window. |
| **IP List Refresh Button** | Click the IP list refresh button ⬚ to update the connected Avitech devices' IP address in the same network mask. |
| **via** | Upon clicking an IP address in the IP LIST window, the selected IP address is displayed here. A device can also be selected by typing its IP address here. |
| **C-HSS / C-SHS** | Displays what type of Pacific converter is currently connected. |
| **Output Resolution** | Configures the specific output resolution and related frame rate. |
| **Status Button** | ⬚ Shows the operational status of the selected Pacific C-HSS/C-SHS. This button is only available (not grayed-out) when the Pacific C-HSS/ C-SHS is selected in the "IP LIST" window (refer to section 2.2.3 for details). |

**Cropping Feature (2)**

| | |
|---|---|
| **Instance** | Chooses between 2 different area of interest instances (**Instance One** or **Two**) and then sets the cropping parameters. |
| **Switch Instance** | If both **Instance One** and **Instance Two** cropping parameters have been set, then clicking the **Switch Instance** button will toggle between the two instances and automatically output the cropping parameters. |
| **Ratio** | Sets a fixed (**1:1**, **3:2**, **4:3**, **5:4**, **16:9**) aspect ratio or a non-fixed (**Any**) aspect ratio for any area of interest. |
| **Crop** | Crops an area by dragging the cursor. Upon releasing the left mouse button, 4 green cropping corners will display the area just selected (area of interest). |
| **Crosshair** | ⬚ Automatically selects a window/object to be cropped by positioning the **Crosshair** on the desired window/object. ❖ For example, auto-selects a YouTube window or a Google Map. |
| **Left/Top/Width/ Height** | Displays and adjusts the cropped instance's size and related location. |
| **Set** | After entering/adjusting the **Left**/**Top**/**Width**/**Height** parameters, click this button to change the location of the four green cropping corners. |
| **Repeated Pan** | Enables the pan feature for cropped instance (pan anywhere). |
| **Send to C-HSS** | Sends the cropped instance to the selected Pacific C-HSS. |
| **Disable Crop** | Disables the cropping. |

📄 *Cropping feature is only available on the Pacific C-HSS.*

**Others (3)**

| | |
|---|---|
| **Change IP** | Changes the IP address of selected Pacific C-HSS/C-SHS. |
| **Save to Flash** | Saves the current ScreenCrop session's parameter to the flash memory of the Pacific C-HSS. The settings can be automatically loaded on the next ScreenCrop session. |
| **Disconnect** | Terminates the connection of selected Pacific C-HSS/C-SHS. |

**Table 2-14** ScreenCrop Utility Control Panel Description

📄 *The Pacific C-SHS, the sister device of the Pacific C HSS, has different features and limited options for the ScreenCrop utility. It only supports: **Status**, **Change Output Resolution** and **Change IP**.*

### 2.2.2  Using the ScreenCrop Utility

📄 *Before using the ScreenCrop utility to control the Pacific C-HSS, you need to set it in the same network mask with the connected computer. Refer to the "Appendix" for further details on setting up the network mask.*

To use the ScreenCrop utility, perform the following steps:

*Step 1.  Copy the three ScreenCrop utility system files to the computer.*

*Step 2.  Double-click **ScreenCrop.exe**. In the case of an alert screen appearing, click **Unblock** to continue.*

📄 *A Windows Security Alert screen may appear upon using ScreenCrop utility for the first time on a computer. Click **Unblock**, and the Windows Alert will not appear on subsequent uses of ScreenCrop.*

### 2.2.3  Status Information

ScreenCrop utility allows for easy monitoring of all networked Pacific devices. With 2 clicks of the mouse, you can fully operate any Pacific converters that are on your network.

*Step 1.  Click to select the desired IP address from the IP LIST window. This will connect you to that particular Pacific device.*

> ✓  *The "Status" button will be enabled and the radio button for Pacific C-HSS or Pacific C-SHS will be faintly highlighted.*

*Step 2.  Clicking the "Status" button will display a popup window that shows detailed information about the device's operational status and broadcast output.*

> ✓  *It gives a status report on the Pacific converter, which includes input signal type, output resolution and related frame rate, audio source, color correction (on/off), sampling, pixel depth, genlock (on/off), and input timing (horizontal/vertical frequency, vertical total lines, horizontal total/start pixel, and vertical start line).*
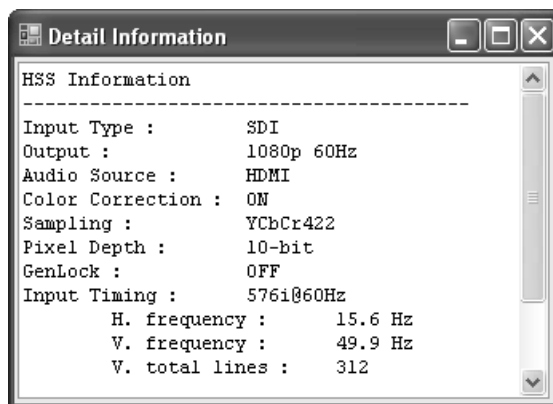
```
Detail Information                    _ □ X

HSS Information
----------------------------------------
Input Type :        SDI
Output :            1080p 60Hz
Audio Source :      HDMI
Color Correction :  ON
Sampling :          YCbCr422
Pixel Depth :       10-bit
GenLock :           OFF
Input Timing :      576i@60Hz
       H. frequency :     15.6 Hz
       V. frequency :     49.9 Hz
       V. total lines :   312
```

**Figure 2-6** Detailed Information on the Connected Pacific C-HSS

## 2.2.4 Cropping Feature

ScreenCrop utility sets 2 instances of "area of interest." The associate contents can then be transmitted to the intended audiences. To crop areas of interest, perform the following steps.
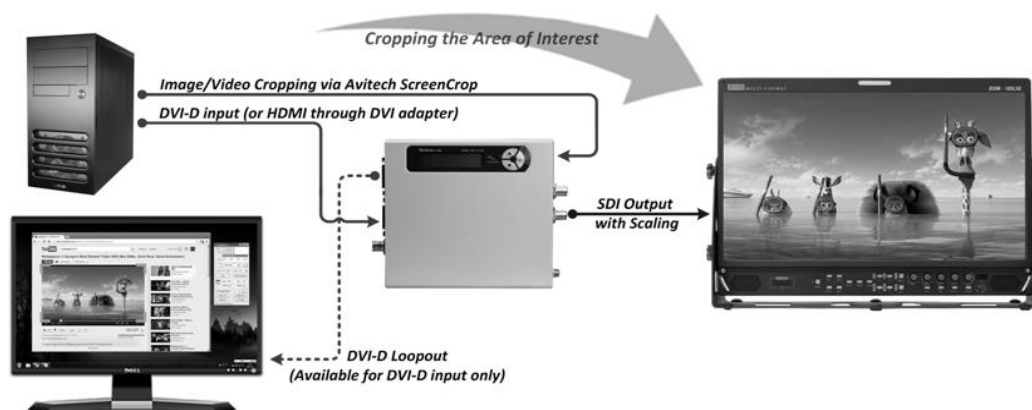


**Figure 2-7** Cropping a Defined Area of Interest

*Step 1.* *Click the **Crop** button and use the cursor to select an area to crop. Upon releasing the left mouse button, 4 green cropping corners will display the selected area.*

✓ *A floating 5✗ magnifying window will display any nearby graphics at 5x and other relevant cursor information (e.g., position and RGB value).*



**Figure 2-8** Magnified Floating Window Showing Cursor and RGB Value

✓ *Click on and drag any of the 4 green cropping corners to enlarge/reduce the area just selected. You may also use the keyboard's top/left/right/down buttons to fine-tune the scope of the area to be cropped without using the mouse button.*

✓ *For additional fine tuning, you may manually enter the values of the **Left/Top/Width/ Height** and click the **Set** button. This will modify the scope of area to be cropped at pixel-level accuracy.*

1. When cropping, **Left/Top** position, **Width**, and **Height** are calculated based on module's input display size. The value for **Width** and **Height** must be greater than 20% of the panel width and the panel height.
   - ✓  For example, if the module's input display timing is 1280×1024 @ 60Hz, then the panel width is 1280 and the panel height is 1024. The cropped window size must be greater than 256 (20% of 1280) × 204 (20% of 1024).



**ScreenCrop - info**

The screen cropped area is too small.
The value for Width must be greater than 256

[ OK ]

2. Depending on the display resolution, a minimal change in the cropping parameters (**Left/Top/Width/ Height**) may not produce any noticeable effect.
3. It is highly recommended to set the displayed image to fill up the monitor's whole screen (use your monitor's built-in display settings to fill the entire screen) to prevent black bar(s) from appearing after cropping.

*Step 2.* Click the **Send to C-HSS** button to send the cropped image back to the Pacific C-HSS for it to be displayed on the output monitor via the **SDI OUT** connector.

Image scaling methods may differ per different graphics cards in the market, causing a pixel or more to be left on the screen (residue from the 4 green corners). Adjust the value of **Left/Top/Width/Height**, and then click the **Set** button to fine-tune the display area for the residue to disappear.

- ✓  ⊕ Automatically selects a window or object to be cropped by clicking and dragging the crosshair button onto the desired window/object to be cropped.
    - ■ **Notice** how the mouse cursor has become a crosshair. As you continue to hold the mouse button and move around the screen, 4 green corners and a violet rectangle will surround the edge of the selected window/object. When the desired window has been selected, release the left mouse button.

- ✓  To do another screen crop, perform these steps once again.

- ✓  To discard the area selected, click the **Disable Crop** button.

*Step 3.* Click the **Disconnect** button or close the ScreenCrop utility to disconnect the computer from the Pacific C-HSS/C-SHS.

1. Upon quitting ScreenCrop utility, the parameters (**Left/Top/Width/Height**) from the last crop were stored through the **Saved to Flash** button or the **Send to C-HSS** button, and will be automatically shown upon the utility's next start-up.
2. If the current screen resolution is different than the last resolution, then the parameters for cropping will need to be re-adjusted based on the new resolution upon restarting the ScreenCrop utility.

### 2.2.5  Cropped Instances Switching

ScreenCrop utility can not only crop areas of interest, but it also allows for the selection of 2 separate instances that can be switched accordingly. Perform the following steps to switch between 2 cropped instances.

*Step 1.  Use the drop-down menu to select **Instance One** or **Two**, and then set cropping parameters.*

*Step 2.  Switch between the two "Instances" by clicking the **Switch Instance** button.*
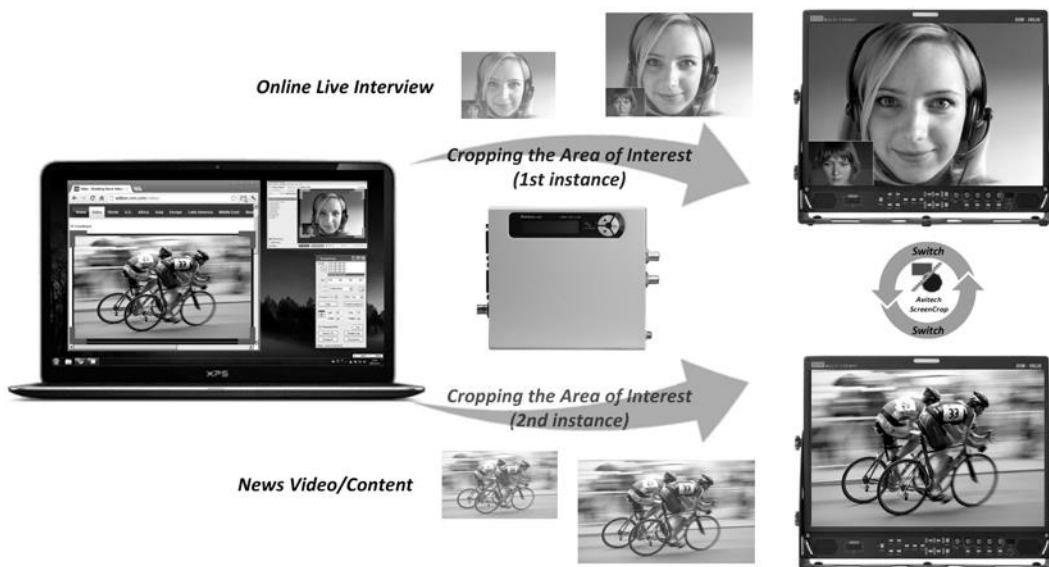


**Figure 2-9** Area of Interest (First/Second Instance)

### 2.2.6  Pan Anywhere

The "Pan" feature allows transfer of a previously-set area of interest to another portion of the screen by clicking the **Repeated Pan** button. Upon clicking the **Repeated Pan** button, the following dialog box will appear.



**Figure 2-10** Pan Instruction

Follow the instructions in the dialog box: Place the mouse pointer on any of the 4 cropping corners, and then use the right-mouse button to pan the area of interest.



**Figure 2-11** Pan Area of Interest

# Appendix

The following 2 methods allow for the Pacific C-HSS/C-SHS to be in the same network mask with the connected computer.

## Method 1: Change the IP Address of the Pacific C-HSS/C-SHS

*Step 1.* *Run ScreenCrop utility by double-clicking **ScreenCrop.exe**. Select the Pacific C-HSS/C-SHS IP address that appears in the **IP LIST** window. Then click **Change IP**.*

*The following screen will show the current IP address in the **New IP** field. Corresponding **Network Mask** and **Gateway** will also be displayed.*
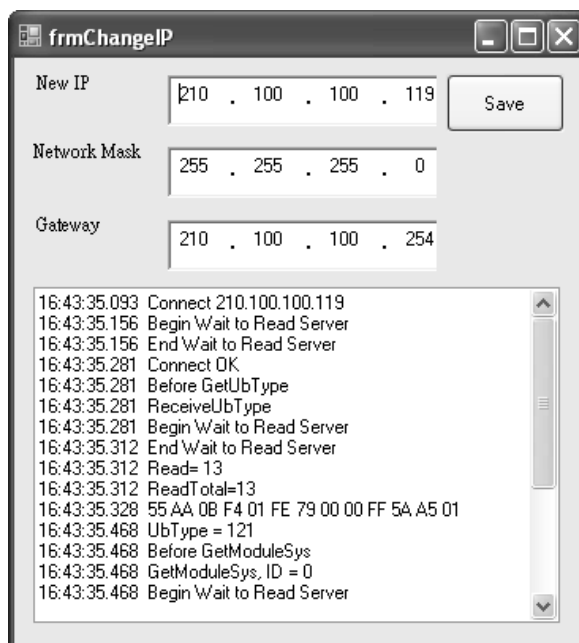


**Figure A-1** ScreenCrop Utility: Change IP Screen

*Step 2.* *Enter the **New IP** address. Edit the **Network Mask** and **Gateway** as necessary. The IP address will be changed for the target device (saved to flash memory of Pacific C-HSS/C-SHS) after you click **Save**.*

*Step 3.* *When the next window appears, click **OK** to exit.*



**Figure A-2** Save IP Screen

> *Other devices on Network:*
> *In some cases, you may have a large number of devices from various manufactures that are all on the same network. ScreenCrop will detect all the devices that are set to the Network Mask ScreenCrop is on. If ScreenCrop does not support a device, then the status button [ ] will be grayed-out and non-selectable. If you click **Change IP**, the following error message will also appear.*
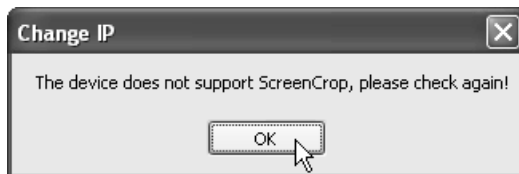


**Figure A-3** Device That Is Not Supported by ScreenCrop Utility (Error Message)

## Method 2: Change the IP Address of the Controlling Computer

**For Windows XP**

*Step 1.  Click **Start**, and then right-click **My Network Places**. Click **Properties**.*

*Step 2.  When the next screen appears, right-click **Local Area Connection** icon, then click **Properties**.*

*Step 3.  Check (to highlight) **Internet Protocol (TCP/IP)**, then click **Properties**.*

*Step 4.  Click the radio button to select **Use the following IP address:**, then enter the **IP address: 210 . 100 . 100 . x** (where **x** is any value from **1 – 253**), and **Subnet mask: 255 . 255 . 255 . 0**.*

*Step 5.  Finally, click **OK** to exit.*

**For Windows 7**

*Step 1.  Click the **Start** menu and type in **Network and Sharing Center**.*

*Step 2.  Click **Change Adapter Settings** located on the left.*

*Step 3.  Right-click the **Local Area Connection** that the Pacific is connected to, then select **Properties**.*

*Step 4.  Check **Internet Protocol Version 4 (TCP/IPv4)**, then click **Properties**.*

*Step 5.  Click the radio button to select **Use the following IP address:**, and then enter the **IP address: 210 . 100 . 100 . x** (where **x** is any value from **1 – 253**), and **Subnet mask: 255 . 255 . 255 . 0**.*

*Step 6.  Again, click **OK** to exit.*