

## VP9 - Dual Channel Video Processor



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The VP9 Dual Video Processing Module provides powerful Picture-In-Picture (PIP) and video mixing functions to drive a TFT panel in your display product, all on a single circuit card!

**Features:** Based on state-of-the-art image processing technology, the VP9 capabilities include:

- digitization of computer-generated video sources with separate syncs or sync-on-green
- alpha-blending or RGB keying of foreground/background video sources
- Flexible windowed output allows configurable regional combining of video sources, including split screen, PIP, and windowed outputs.
- NTSC and PAL inputs supported with optional mezzanine board
- frame rate conversion
- independent horizontal and vertical scaling
- programmable image position within larger background area
- incoming video gain and offset adjustments
- digital brightness and contrast adjustments
- Fine phase clock adjustment for pixel sampling
- Images can be reversed left to right
- Images can be flipped top to bottom
- Programmable power sequencing for panels
- Selectable 3.3, 5, or 12 VDC panels and inverters
- LVDS and parallel interfaces for most TFT panels
- Interlaced and non-interlaced RGB I/O

**What does it do?** The VP9 is ideal for integrating powerful dual video processing capabilities into your display product. No need to purchase bulky, expensive rack mounted devices when a single circuit card will do the job!

## VP9

- **Digitizes 2 separate video sources, up to UXGA**
- **Drives a single output, up to UXGA**
- **Configuration using RS232 command-line parameters or PC-based utility**
- **PIP, mixing, overlay, split screen**
- **frame rate conversion and re-sizing**
- **6" x 8" form factor**
- **Standard Inputs: TMDS or Analog**
- **Optional Inputs: NTSC, PAL**
- **Standard Outputs: Parallel, LVDS**
- **Optional Outputs: TMDS or Analog**

### VP9 Setup

To aid in setting up the VP9, our powerful VP9configure™ software is provided free of charge. This application allows you to configure the VP9 for your application. The configuration is saved in the VP9's non-volatile storage. All features of VP9configure™ are implemented in an intelligently designed, simple to use, graphical user interface (GUI). The application installs on any Windows XP platform and communicates with the VP9 via a serial cable connected to an available communication port on your PC.

### Example Application: Windowed Blend:

Suppose you have two sources: 1) UXGA background image, and 2) VGA Head Up Display (HUD) symbology. You want to combine the background imagery and HUD symbology in one region, while passing the background imagery unaltered elsewhere in the UXGA output.

### Solution: Using VP9configure™ software:

a) enter the timing parameters of the two input sources, b) enter the desired output timing parameters, c) for each input, select the area of interest and its mapping onto the output resolution, and set up the output combination by selecting the background video as the main image, positioning an appropriate size window where the HUD resides, and selecting a "mixed" image within the HUD window area, d) set up the desired alpha blend or overlay within the HUD window, e) make input capture adjustments, and f) set up the power and video interfaces to your flat panel.

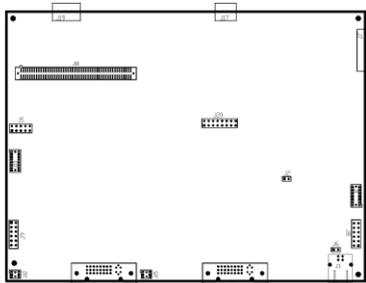
**High Resolution Picture-In-Picture:** Many video cards have minimal Picture-In-Picture processing, but few have two independent video processing engines that can handle UXGA video rates. The



VP9 can! To set up your unique PIP function, simply enter the appropriate input and output timing, desired PIP window size and location, desired area of interest for the PIP source.... and your high res PIP is up and running!

Please call 636-300-5164 to discuss your application.

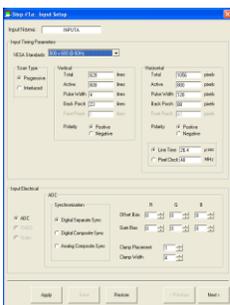
<b>Physical Dimensions</b>	6" x 8" x 0.8" (approx)
<b>Temperature Range</b>	Operating: 0° C to +70° C Storage: -40° C to +100° C
<b>Video Inputs</b>	Analog RGB (Interlaced and non-interlaced), TMDS - Up to UXGA resolutions - Standard and custom timing - Separate sync or sync-on-green NTSC and PAL (with optional mezzanine) <b>Note: An internal filter is 1600 active pixels, so either input active or output active pixels must be less than or equal to 1600. Therefore, 1080P for input AND output is not supported</b>
<b>Video Outputs</b>	Parallel and LVDS Optional Analog RGB (interlaced and non-interlaced), TMDS
<b>Input Power</b>	+12 VDC, 1.5 Amp typical when driving UXGA output
<b>Output Power</b>	Panel: 12V, 5V, or 3.3V: Inverter: 12V, 5V, or 3.3V
<b>Control Interface</b>	RS-232
<b>Other</b>	Inverter Control (resistance and voltage control), External contrast control



P2	DVI-I Video Input A
P3	DVI-I Video Input B
J3	USB 2.0
J7	22 Pin Hirose DF11 for Power
J8/J9	14 Pin Hirose DF11 for RS-232 Control
J17	10 Pin Hirose DF11 for optional Analog Output Video
J19	14 Pin Hirose DF11 for optional TMDS output

Mezzanine board for LVDS and Parallel output not shown

Example VP9configure™ menus are shown below:



Step #1 Define input timing



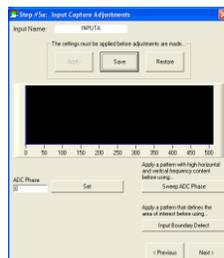
Step #2 Define output timing



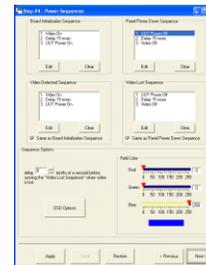
#3 Define windowing / scaling / border colors



#4 Define Mixing and Color Adjust



#5 Input Capture Adjust



#6 Define Panel Power Sequence