VP4E LCD Controller

Interfaces with 3ATI displays and other commercial TFT panels requiring a small form factor


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The VP4E LCD controller interfaces with 3ATI displays and other commercial TFT panels requiring a small form factor. The VP4E allows you to use RGB PC video as a source for your display. Other video formats are supported as well. VP4E supplies both single channel parallel RGB and single channel LVDS outputs, making it suitable for many panels up to XGA and beyond

## Supports Video Rotation

For special applications that require video to be rotated, the VP4E supports video rotation in 90 degree increments.
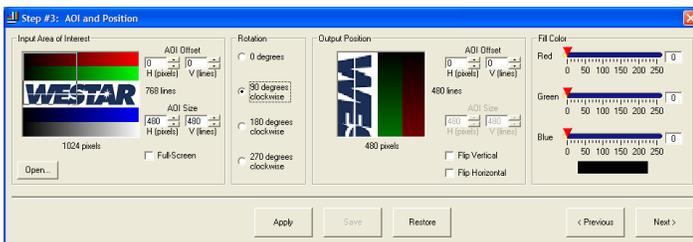
Powerful Configuration Utility

The VP4E configuration utility allows you to

- Configure a VP4E for a unique application
- Change the timing or electrical parameters to account for a new video requirement or a new TFT panel
- Make adjustments to optimize the VP4E for a particular installation, and much more…
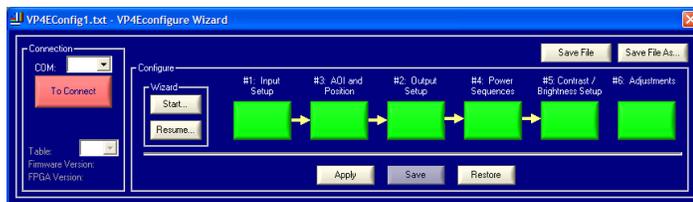
Optimized for Embedded Applications

The VP4E is designed with embedded applications in mind. With its low profile design, locking high-density Hirose connectors, and 3"x3" form factor, the VP4E is ideal for 3ATI displays or space-constrained displays. The RS-232 interface allows easy updates even after the VP4E is installed in your display.

Features

Based on state-of-the-art processing technology, the VP4E LCD Controller capabilities include:

Video Conversion

- Digitization of computer-generated video sources with separate syncs or sync-on-green
- Supports up to SXGA displays
- Optional power conversion boards for ancillary power or special connectors
- Frame buffering allows the display to be driven at a different pixel clock rate than the source video

Video Rotation and Area-of-Interest Control

- Programmable area of interest is captured from larger active area in source video
- Video rotation in 90 degree increments
- Image can be reversed left to right
- Image can be flipped top to bottom

Programmable

- Remote interface for both initial configuration and, if required, operational control
- Programmable power sequencing to display
- Fine phase clock adjustment for pixel sampling
- Programmable input and output discretes

Interfaces with many 3ATI display devices

The VP4E has broad capabilities needed to interface to many 3ATI display devices (see table below). In some cases, such as the Korry KDM-340, the VP4E can directly drive the display. Westar offers an ancillary power board to drive the APC 340 display from American Panel Corporation.

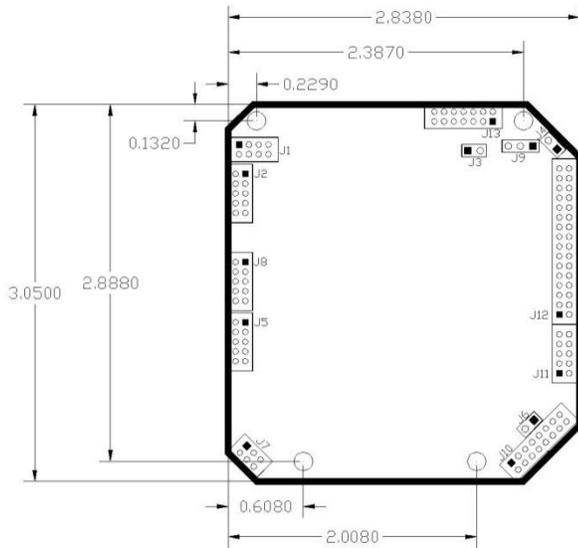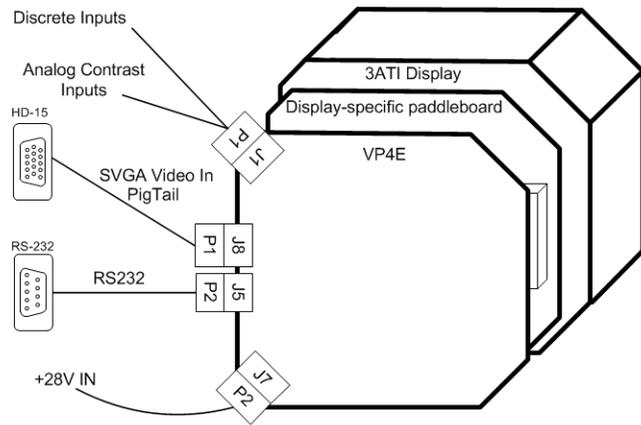| Display Manufacturer	3ATI Model
American Panel Corporation (APC)	APC 340
International Display Consortium (IDC)	3ATI
Korry	KDM-340

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Figure 1: VP4E Dimensions and Connector Diagram

Note: VP4E configuration with connectors J10, J11, and J13 moved to the back of the board

Figure 2: Typical Connection for a 3ATI display with a specific paddleboard to mate the VP4E to the display

Spec Summary

Physical Dimensions	3.1" x 3.1" x 0.7"
Temperature Range	Operating: 0°C to +70°C (additional data available) Storage: -40°C to +100°C
Video Inputs	Computer - Up to SXGA resolutions (110 MHz pixel clock) - Standard and custom timing - Syncs (Separate sync or sync-on-green)
Video Outputs	Single LVTTL (24 bit panel), up to 110MHz: Single link LVDS outputs (up to 85MHz)
Input Power	+9 to +28 VDC
Control Interface	RS-232

Connector	Hirose	Description
J1	8 Pin DF11	Discrete In and Contrast
J2	10 Pin DF11	FPGA Configuration
J5	10 Pin DF11	RS-232 Control
J7	6 Pin DF11	Power Input
J8	10 Pin DF11	Analog Video Input
J9	4 Pin Jumper	Power Select
J10	16 Pin DF11	Discrete I/O to Display
J11	10 Pin DF11	Control to Display
J12	32 Pin DF11	Digital Data Output
J13	14 Pin DF11	LVDS Output

VP4E Configuration

The VP4E Configuration utility is supplied to VP4E customers. VP4Econfigure is installed on Windows XP platforms, and connects to the VP4E via an available RS-232 serial cable. The utility uses a 4-step process to set up the VP4E for your application:

1. Setup the input timing and electrical parameters
2. Setup the output timing and electrical parameters
3. Define the areas of interest within the input image and the mapping to the output resolution
4. Setup the video and display power sequence

VP4E Operation

Typically, the VP4E operates as follows:

1. Upon power up, the VP4E configures itself based on its internal BIOS
2. When valid video signal is detected, the VP4E applies power to the display per the power sequence defined in the BIOS.
3. When loss of video is detected, the display can: power down, drive a pre-defined color (blue-screen), or some other function as defined in the BIOS created with the configuration utility.

Additional Resources

To view our full line of LCD Controllers or other products, visit our website at:

www.westardisplaytechnologies.com

Contact Us

Call us for additional product information and pricing.

+1 (636) 300-5164

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