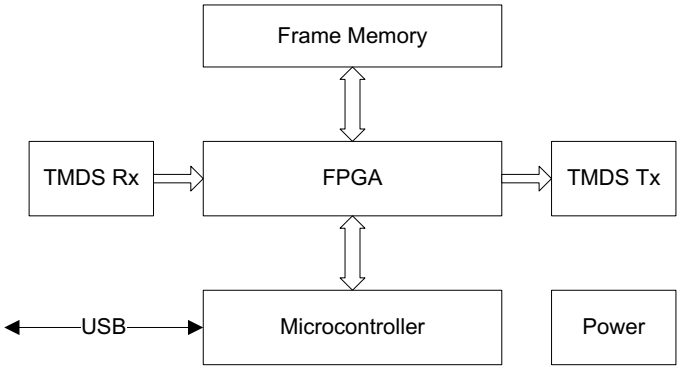
109595 DVI Frame Grabber



- *Captures frames on a single link DVI video source*
- *Input can be fed through the DVI output for a live video output. Alternatively, the DVI output can display the last captured frame, to produce a static "freeze-frame" image.*
- *Frame capture "trigger" via USB command or discrete input.*
- *Captured frame is uploaded at USB2.0 data rates. An XGA image can be captured and uploaded in less than 400 msec.*
- *Supports up to 108 MPixel/sec pixel rates, and SXGA resolutions*

Introduction

The 109595 DVI Frame Grabber provides in-circuit frame grab capabilities for single link DVI video streams.

In a typical application, the 109595 inputs a DVI stream, grabs frames and uploads via USB, while repeating the DVI input on the DVI output port. This is referred to as "current frame" or live video mode.

Alternatively, the 109595 inputs a DVI stream, grabs a frame, uploads the frame via USB, while driving the captured frame on the DVI output. This is referred to as "last frame grabbed" mode or static mode.

User Programmability

The Grab command defines the file structure and area-of-interest (AOI) of input frame to be transmitted over USB. It also defines a border color to fill in the balance of the captured AOI when sending out the DVI output. For example, a 600x600 pixel area can be captured from a 1024x768 source. The 600x600 will be transmitted out the USB, while a 1024x768 area consisting of the 600x600AIO plus the border is sent out the DVI connector.

The Show command defines the mode of the DVI output port. Live video is a pass-through of the input video. Static mode shows the last frame grabbed, and is essentially a freeze frame mode.

Other commands can request board status and input video status, and program the EDID.

Display Interfaces

- SL DVI TMDS I/O up to 1280x1024 60 Hz.
- Please contact the factory for interfaces up to 1080P.

Special features

- EDID prom on input channel is programmable via command line.
- Ability to read EDID prom on the output channel.

Getting Started with the 109595

Our technical support team has ready-to-go configuration files that can be downloaded to the 109595 from the configuration utility.

All commands are defined in the Command Line description. Typical commands are shown on the next page.

109595 configuration utility and software

The 109595 is supported with utility software to allow in-the-field firmware and FPGA updates. We also supply Linux and Windows drivers to allow easy interfacing to the 109595 via the USB interface.

Westar Display Technologies | www.westardisplaytechnologies.com
4 Research Park Drive, St. Charles, MO 63304, USA | Phone: 1.636.300.5100 Fax: 1.636.300.5105
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Below is the command structure to “grab” a frame, from the command line description document:

1.1.1 Grab Parameters (GRAB!)

The grab parameters define the video data that is transferred over USB. The grab parameters also affect how video is drawn at the output.

Grab Parameters Command		
Parameter	Description	Units
FG0	Device Name	
GRAB	Command	
=,?,!	Direction	=, ?,!
MAP	Color mapping of RGB frame data over USB	0 = BGR (.bmp format) 1 = RGB 2 = GBR 3 = RBG 4 = BRG 5 = GRB
ROTATE	Rotation	0 = no rotation 1 = -90 deg (clockwise) 2 = +90 deg (ccw)
HFLIP	Horizontal Flip	0/1 (false/true)
VFLIP	Vertical Flip	0/1 (false/true)
AOI_SELECT	Area of interest selection. Automatic – Selects entire active area Manual – Allows selection of an AOI sub-region	0 = Automatic 1 = Manual
[AOIL]	Area of interest left edge (manual)	pixel
[AOIT]	Area of interest top edge (manual)	line
[AOIW]	Area of interest width (manual)	pixels
[AOIH]	Area of interest height (manual)	lines
[FILLR]	Border area (outside of AOI) fill color red comp	0-255
[FILLG]	Border area (outside of AOI) fill color green comp	0-255
[FILLB]	Border area (outside of AOI) fill color blue comp	0-255

Example:

FG0 GRAB=0 0 0 0 0 //BGR, no rot/hflip/vflip,

FG0 GRAB=0 0 0 0 1 100 100 640 480 0 0 255 //BGR, no rot/hflip/vflip, 640x480 sub-region

Below is the command structure to define the DVI output mode:

1.1.2 Show Parameters (SHOW!)

The show parameters define which frame data is shown at the output. The show parameters also affect which frame is transferred over USB.

Show Parameters Command		
Parameter	Description	Units
FG0	Device Name	
SHOW	Command	
=,?,!	Direction	=, ?,!
SHOWN	Show either the current or last grabbed video frame. Current: When showing the current video frame, the frame grabber will grab the **current** (most recent) video frame. Last Grabbed: When showing the last grabbed video frame, the frame grabber will grab the **next** video frame.	0 = Current Frame (live video), Grabs current video frame 1 = Last Frame Grabbed (static), Grabs next video frame
POWER_OFF	Turn off the DVI output	0 = On 1 = Off

Example:

FG0 SHOW=0 0 //show live video and grab the current (most recent) frame

FG0 SHOW=1 0 //show the last grabbed frame (static/frozen)

With pre-loaded parameters, the 109595 can be configured for your particular application. In addition, commands can be sent dynamically for embedded applications requiring dynamic control.

109595 Operation

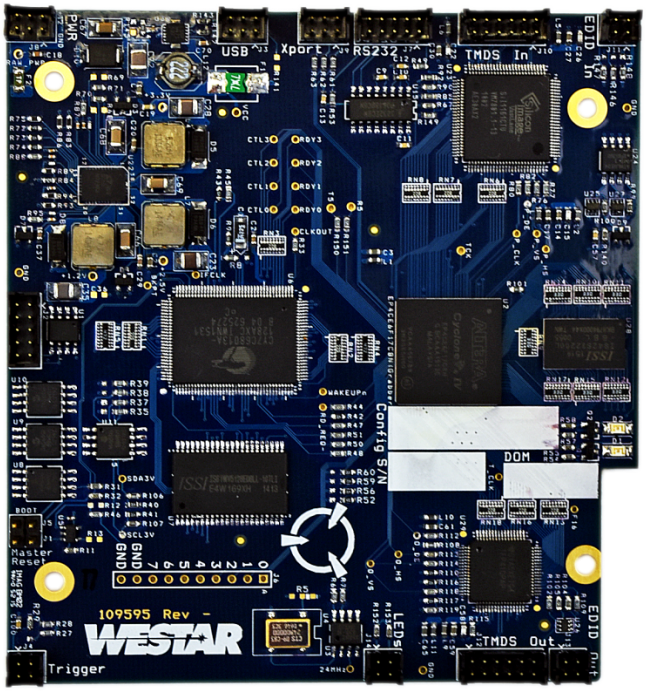
Typically, the 109595 operates as follows:

1. Upon power up, the 109595 configures itself based on its internal BIOS. The BIOS includes various mode definitions.
2. The 109595 defaults to the “”current frame” or live video mode. Thus the DVI output is displaying the incoming video, while each frame is captured.
3. Upon receipt of a grab command, the 109595 will finish capturing the latest frame, and upload per the defined area-of-interest.
4. The default modes can be re-programmed and saved to non-volatile memory.

Contact Us

Call us for additional product info and pricing.

+1 (636) 300-5164 www.westardisplaytechnologies.com



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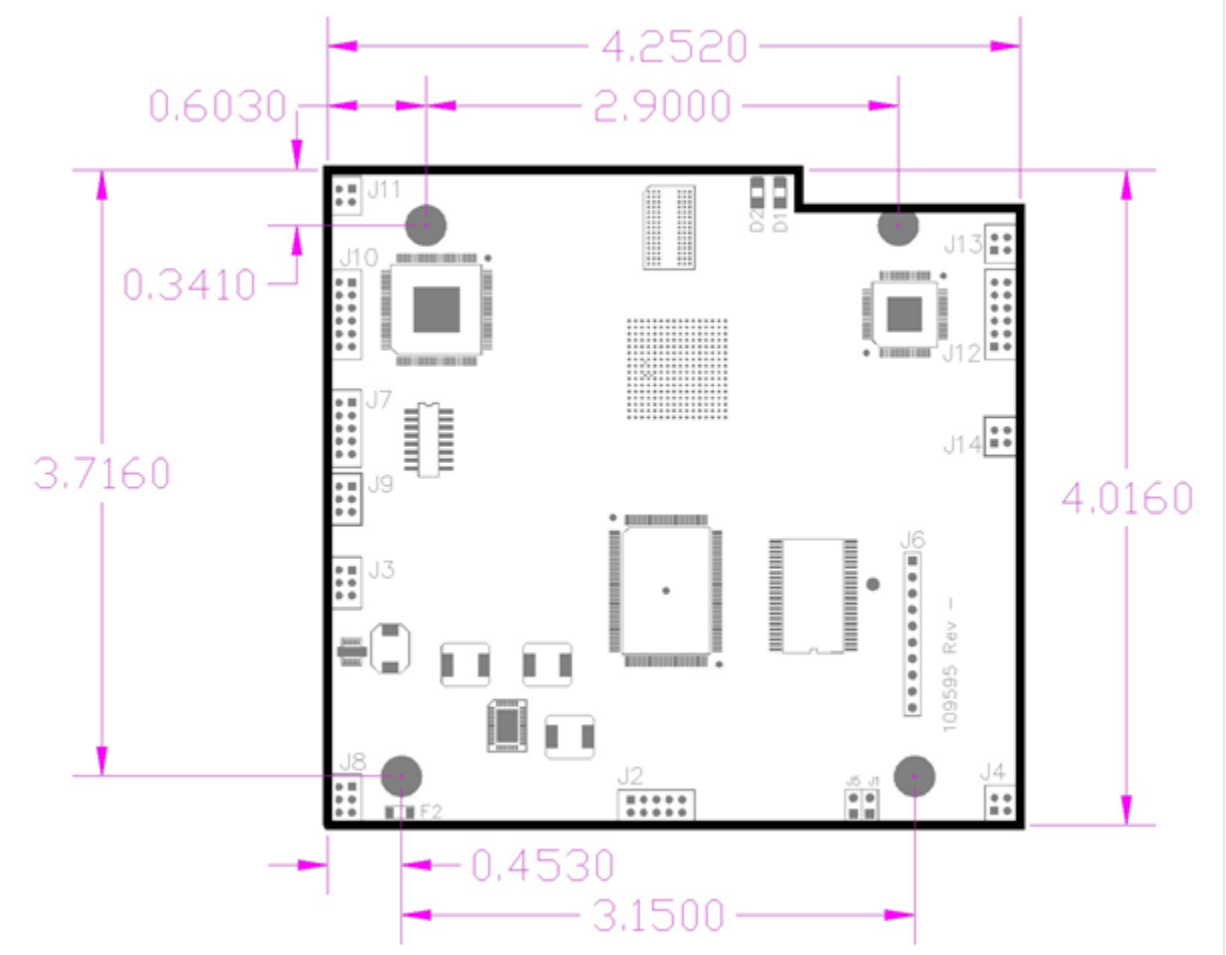
109595

Physical Dimensions	4.016” x 4.252” x 1.4”
Temperature Range	Operating: 0°C to +70°C (additional data available) Storage: -40°C to +100°C
Video Input/Output	DVI-SL (up to 165 MHz)
Input Power	+12 VDC, 10 Watts
Control, Frame upload I/F	USB 2.0

Connector	Type	Description
J1	2 position jumper	Master Reset Jumper
J2	DF11-10DP	Factory Use Only
J3	DF11-06DP	USB Interface
J4	DF11-04DP	Trigger Interface
J5	2 position jumper	Factory Use Only
J6	10 pin header	Factory Use Only
J7	DF11-10DP	RS-232 Interface
J8	DF11-06DP	Power Input
J9	DF11-06DP	Factory Use Only
J10	DF11-12DP	TMDS Input
J11	DF11-04DP	Input EDID
J12	DF11-12DP	TMDS Out
J13	DF11-04DP	Output EDID
J14	DF11-04DP	External LED



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