

Advanced LCD Controller

Applications

- PIP LCD TV & LCD Monitor with Video Input
- PIP PDP/ Front Projection/ Rear Projection/ Progressive Scan TVs
- PIP HDTV/DTV Video Enhancer or Advanced TV Tuner Box
- Other PIP Flat Panel Displays

Description

AL310 is a highly integration LCD Controller which supports Triple-port input with multiple graphics/video formats capable and mixing captured frames output with scaling, overlaying and alpha blending effects...etc. It can be used for most video conversion and processing applications.

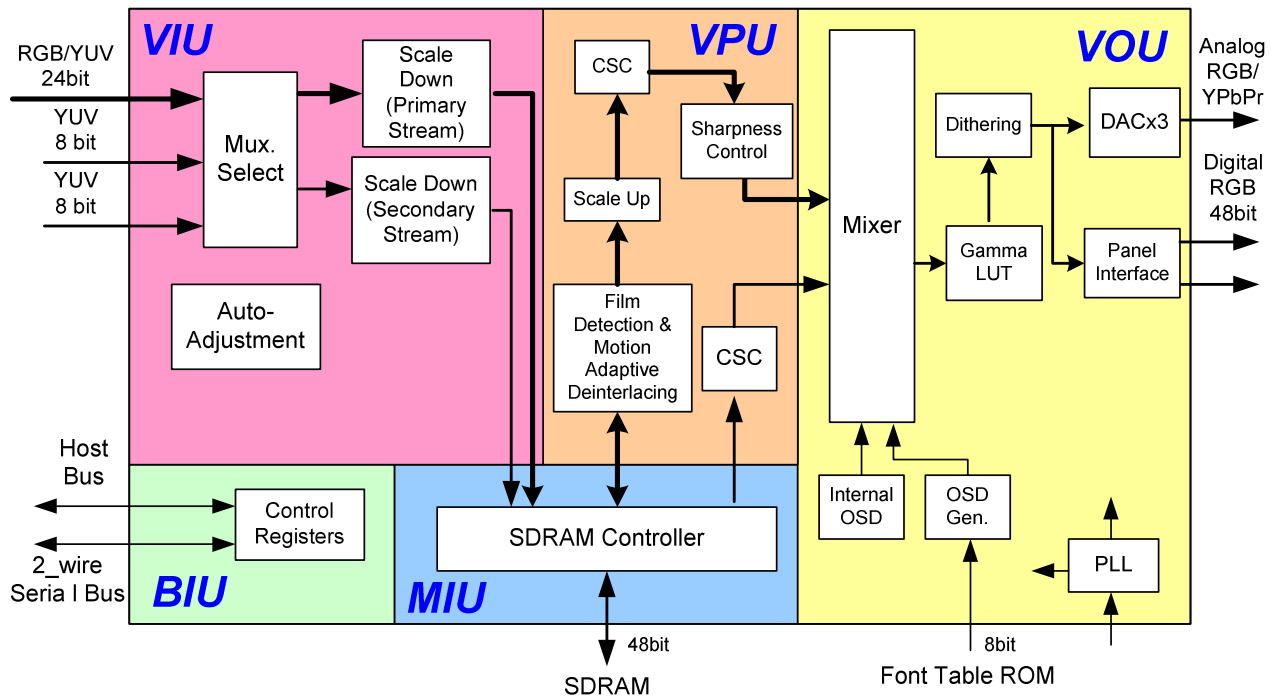
AL310 is equipped with a high quality scaling engine that automatically maintains full screen output display, regardless of the resolution of the incoming signals. Applying AverLogic's proprietary scaling algorithm, the primary input video can be scaled up and scaled down

independently in horizontal & vertical directions. It also provides film mode detection, advanced motion adaptive de-interlacing, filtering, and scaling which's able to convert and process the interlaced video to be displayed on progressive monitor or panel.

General Features

- Support Triple Digital RGB/YUV inputs and Analog non-interlaced RGB/YPbPr and Digital RGB 48bit outputs
- Triple Input ports for Vide & VGA PIP overlaying
- Film mode Detection with Inverse 3:2/2:2 Pull Down supported
- Advanced Motion Adaptive De-interlacing
- AverLogic's Proprietary Scaling Algorithm for Scaling Up and Down
- Built-in 2K Bytes OSD RAM and support External OSD ROM
- Available in 308-pin PBGA 2.5V Core and 3.3V I/O power supplies with 5V input tolerant

Function Block Diagram



Features

Input Interface:

- ◆ Input resolution up to 1280x1024 @60Hz
- ◆ Simultaneous Primary and Secondary input for PIP overlaying (Video over Graphics or Video over Video)
- ◆ Input resolution support:
 - VGA up to SXGA(RGB 24bit), EDTV & HDTV
 - SDTV(NTSC/PAL)
- ◆ Video interface ITU-R 656-8bit, YUV422 support

Output Interface:

- ◆ Output resolution up to 1280x1024 @60Hz
- ◆ Non-interlaced RGB/YPbPr Analog and Digital RGB 48bit outputs supported

SDRAM Interface:

AL310 Flyer Rev. C1.3

- ◆ Support maximum 48bit bus width SDRAM interface, two or three of SDRAM configuration up to 125 MHz supported

Scan Rate & Format Conversion:

- ◆ De-Interlacing for Interlaced Video Input
- ◆ Film Detection with Inverse 3:2 & 2:2 pull down supported
- ◆ Advanced Motion Adaptive De-interlacing with Spatial and Temporal Filtering support
- ◆ Frame Rate Conversion(FRC) from 50Hz up to 120Hz

Zoom engine and DSP:

- ◆ Independent Scale Up and Down in both Horizontal and Vertical direction with 4-line, high precision interpolation
- ◆ Digital Brightness/ Contrast/ Saturation

Control

- ◆ Sharpness Control
- ◆ Built-in LUT for Gamma Correction and Color Adjustment
- ◆ Dithering Logic for Color Depth Enhancement

Overlaying and Alpha Blending:

- ◆ Chroma and Color Key Overlaying support
- ◆ Two input source overlaying for PIP display with Alpha Blending/Transparency effect
- ◆ By pixel alpha blending support

2-Wire Serial Bus or Parallel Port Registers

Access:

- ◆ Registers can be accessed by 2-Wire Serial Bus or 8 bit parallel port for high speed registers data update

On Screen Display (OSD):

- ◆ 2k Bytes Internal OSD RAM for fine bitmaps and text font
- ◆ Dual internal OSD windows support with Alpha Blending/Transparency effect
- ◆ Support up to 64k Bytes External ROM for font and bitmap data

Other Features:

- ◆ Primary input stream VBI pass through support
- ◆ Frame capture Mirroring support in Horizontal or Vertical direction
- ◆ NTSC/PAL Video Input Auto-Detection support
- ◆ Power Saving support

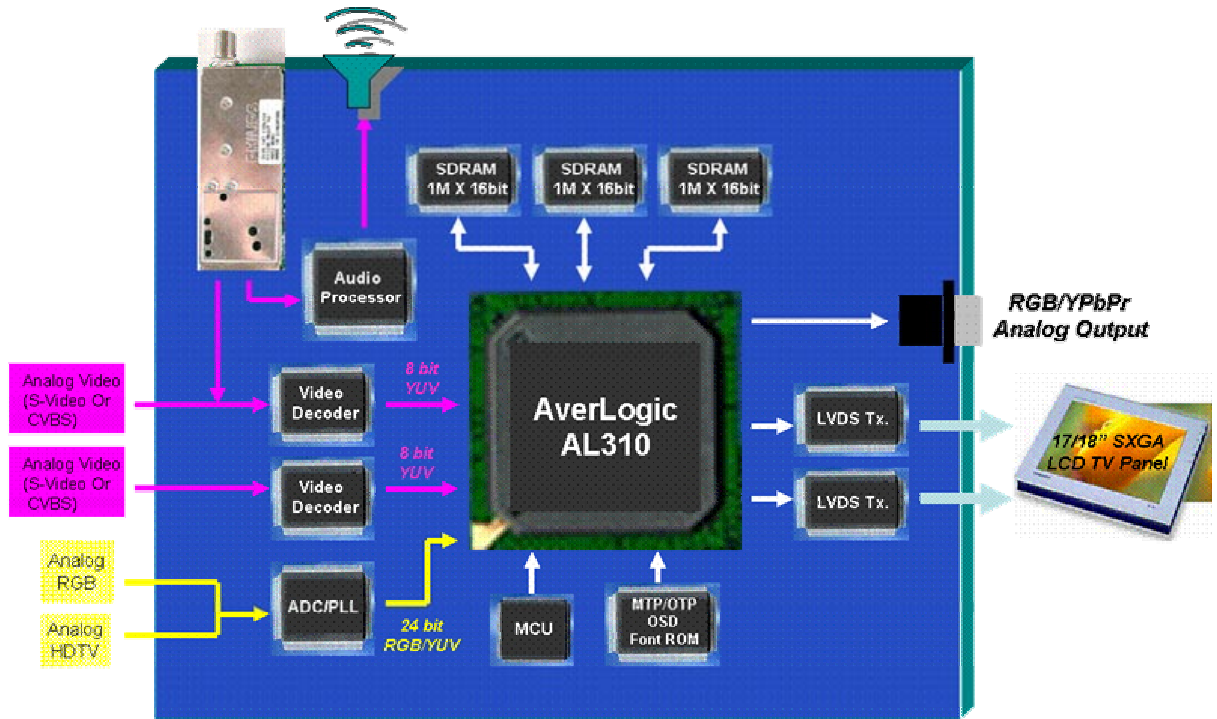
Operating Power:

- ◆ 2.5V core and 3.3V I/O power supplies with 5V input tolerant

Package:

- ◆ 308-pin PBGA

Application Example





CONTACT INFORMATION

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