FHD LCOS Controller

Features

LCOS Controller

- Converts video signals into efficient digital format used by Syndiant LCOS panels
- MIPI -- 4 lanes (2.5Gbps/lane max)
- LVDS -- 4 lanes (2.5Gbps/lane max)
- YCbCr/RGB format
- Embedded frame buffer
- Supports de-interlacing and color space conversion
- Integrated controllers for FLASH, and illuminator control
- High-level I2C control interface
- 1.8 V, 3.3 V I/O, 1.1 V core
- Keystone correction

LCOS Panels Supported

- SYL2282, 0.55" 1080p
- SYL2281, 0.37" 1080p
- SYL2271, 0.37" 720p

Overview

Syndiant's patented LCOS micro display architecture integrates all-digital smart electronics onto the display panel. An application specific SIMD processor performs bit serial data manipulation to control each pixel. The intelligence is divided between the Controller and the panel; the Controller formats and arbitrates data flow to the panel, and the panel logic computes new pixel values and updates the pixels. Pixel values are separated into base and sharpener bits which maintains sharpness while reducing data bandwidth to the panel.
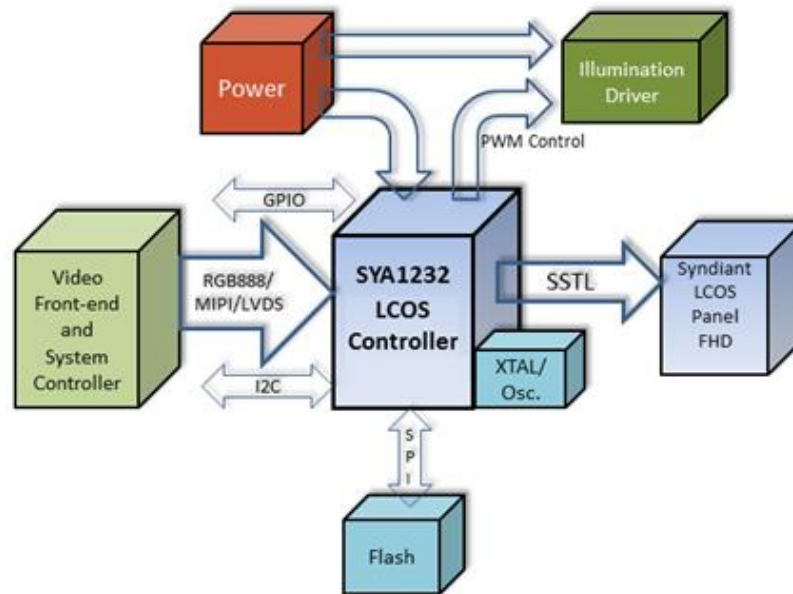
The Syndiant SYA1232 LCOS controller supports SYL2271, SYL2281, SYL2282 Syndiant LCOS panels. The SYA1232 provides excellent image quality with vivid saturated colors while delivering the low cost and power efficiency requirements for battery operated handheld devices.

The SYA1232 also provides several system integration advantages, including small board footprint, embedded frame buffer MIPI/LVDS, Data 0-31, GPIO, Keystone Correction, built-in de-interlacing and color space conversion. These features enable reduction in system complexity, size, cost, and power.

Typical Specifications

Resolution	720p, 1080p	**Package Type**	TFBGA
Power supplies	1.1V, 1.8V, 3.3V	**Package Dimensions**	9 mm x 9 mm
Power	~250mW	**Ball Pitch**	0.65 mm (169 balls)
Light-on Duty Cycle	95%	**Operating Temperature**	-10˚C to 85˚C

System Block Diagram

Syndiant Advantages

- High resolution vs. imager size
- High resolution offers a rich user experience by supporting a full range of content including reading email attachments, web browsing, text, graphics, multimedia, and full-motion video
- Smooth gray scale at all brightness levels
- High quality image and video reproduction
- Fast LC response time and sophisticated drive algorithms enable saturated colors and high illumination on-time
- Programmable field rate and field duration enables custom system performance optimization
- High reliability and long lifetimes suitable for consumer applications
- Compatible with LED or Laser light sources

Syndiant