

## UHD LCOS Controller

### Features

#### LCOS Controller

- Converts video signals into efficient digital format used by Syndiant LCOS panels
- MIPI/LVDS input – 4 lanes (2.5Gbps/lane max)
- YCbCr/RGB format
- 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

- SYL2341, 0.55" (3840 x 2160)

### 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. This efficient methodology enables high bit depth liquid crystal drive while requiring minimal data bandwidth to the panel.

The Syndiant SYA1311 LCOS controller supports the Syndiant LCOS panel – SYL2341 (3840 x 2160). The SYA1311 provides excellent image quality with vivid saturated colors while delivering the low cost and power efficiency requirements for battery operated handheld devices.

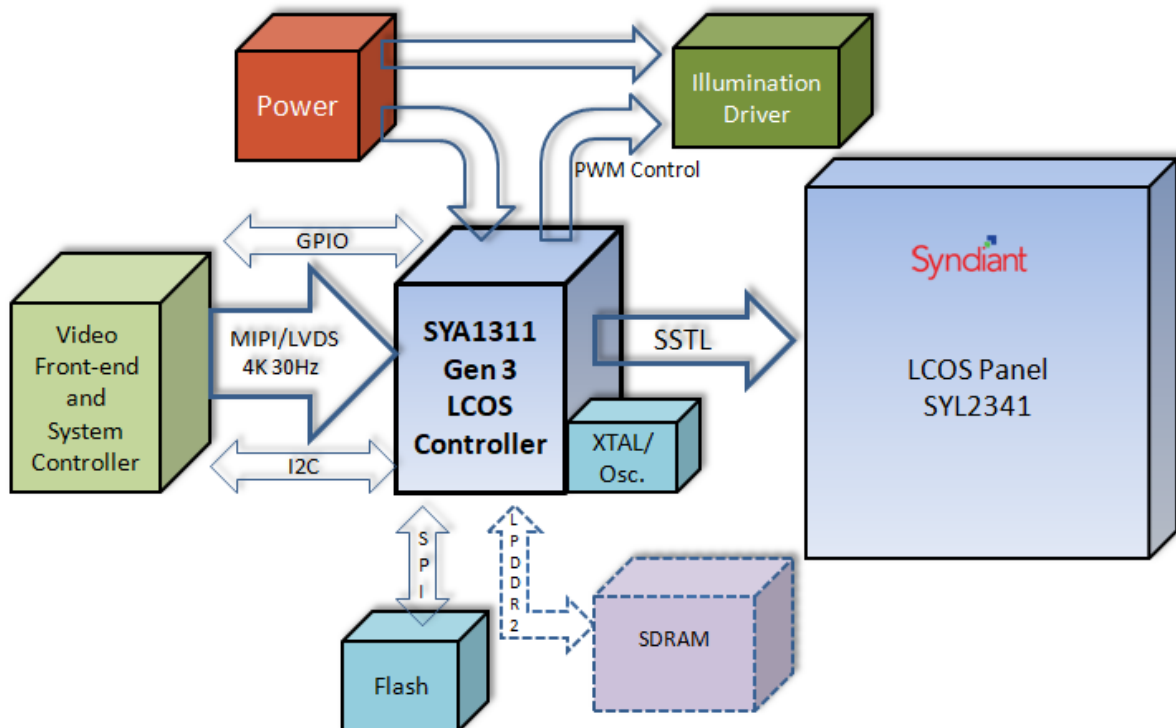
The SYA1311 also provides several system integration advantages, including small board footprint, MIPI/LVDS, GPIO, Keystone Correction, built-in de-interlacing and color space conversion. These features enable reduction in system complexity, size, cost, and power.

Using Syndiant's Q-View technology, 4K resolution is delivered while maintaining power consumption at the level of a 1080p panel.

## Typical Specifications

<b>Resolution</b>	4K UHD (3840 x 2160)	<b>Package Type</b>	TFBGA
<b>Power supplies</b>	1.1V, 1.8V, 3.3V	<b>Package Dimensions</b>	11 mm x 11 mm
<b>Power</b>	~350mW	<b>Ball Pitch</b>	0.65 mm
<b>Light-on Duty Cycle</b>	95%	<b>Operating Temperature</b>	-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