# Multi-Resolution LCOS Controller

Features

LCOS Controller

- Converts video signals into efficient digital format used by Syndiant Second Generation LCOS panels
- 24-bit RGB Video Input
- Support for BT656 or YCrCb input
- Supports de-interlacing and color space conversion
- Built in frame buffer
- Integrated controllers for FLASH, and illuminator control
- High-level I2C control interface
- SSTL2 output drivers
- 1.8 V, 3.3 V I/O, 1.2 V core

LCOS Panels Supported

- SYL2271, 0.37" 1280x720
- SYL2270, 0.24" 1280x720
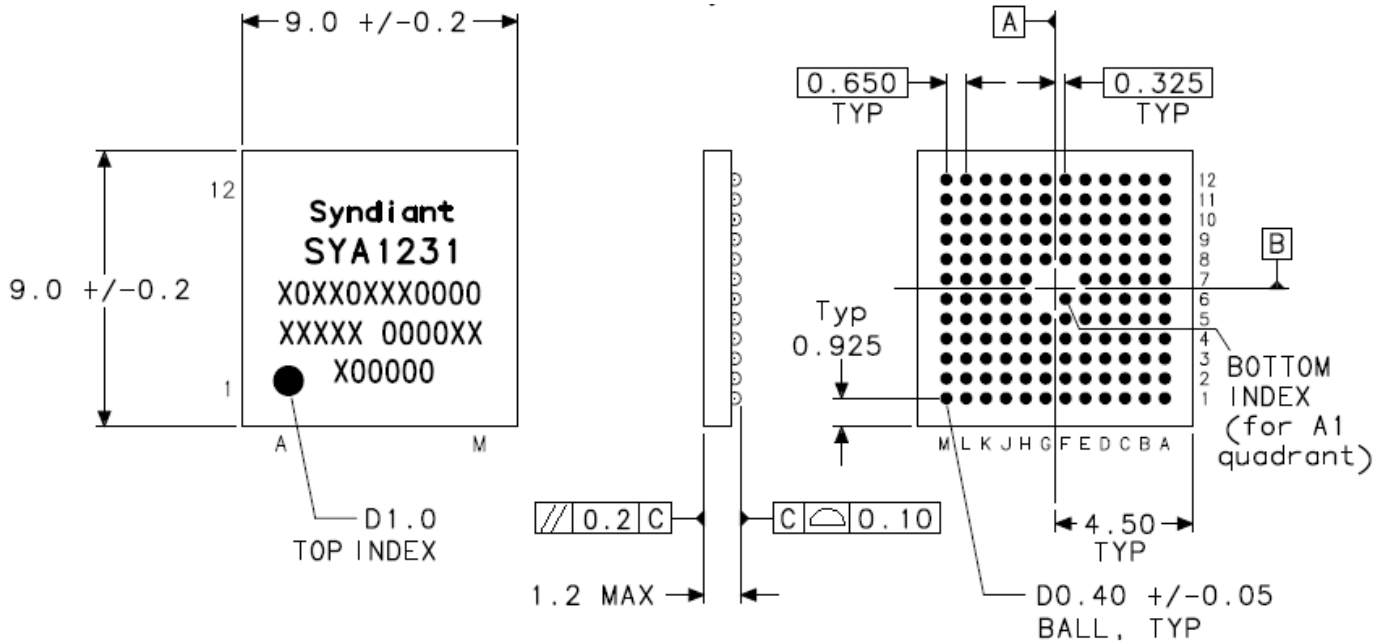
Typical Specifications

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Resolution	Up to WXGA (1366x768)	**Package Type**	BGA-144
Power supplies	1.2V, 1.8V, 3.3V	**Package Dimensions**	9 mm x 9 mm
Power	130 mW	**Ball Pitch**	0.65 mm
Light-on Duty Cycle	95%	**Operating Temperature**	-10°C to 85°C

O v e r v i e w

Syndiant's patented LCOS microdisplay architecture integrates all-digital smart electronics onto the display panel. 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 SYA1231 LCOS controller supports the second generation Syndiant family of LCOS panels including SYL2271 (1280x720). The SYA1231 provides excellent image quality with vivid saturated colors while delivering the low cost and power efficiency requirements for battery operated handheld devices.

The SYA1231 also provides several system integration advantages, including small board footprint, integrated DRAM frame buffer, GPIO, ADC inputs, Keystone Correction and built-in de-interlacing and color space conversion. These features enable reduction in system complexity, size, cost, and power.

System Block Diagram
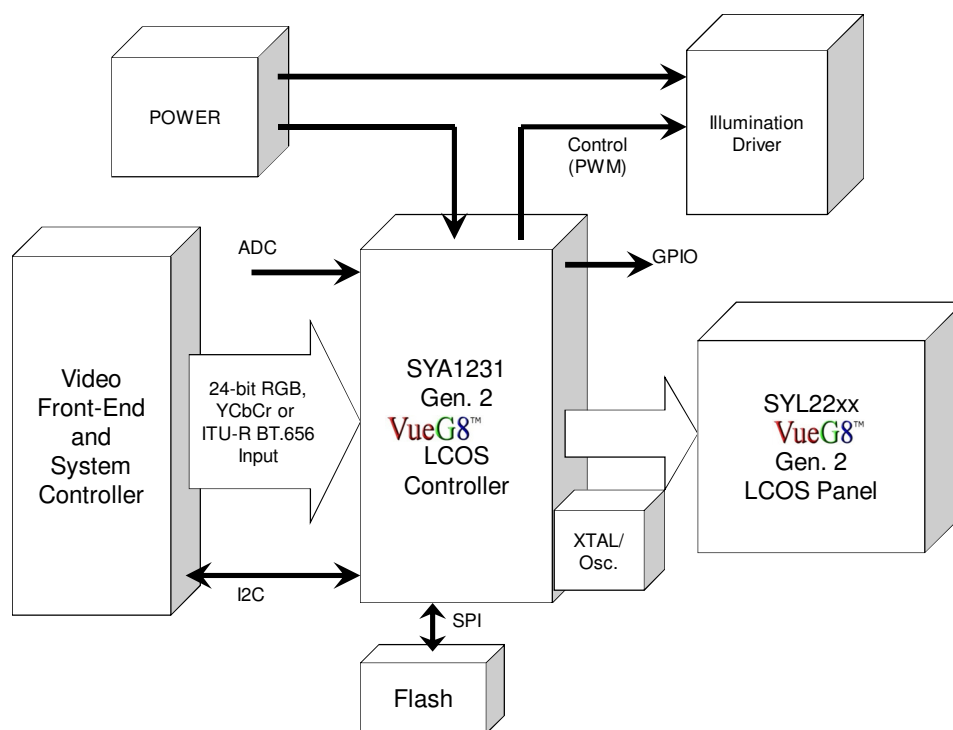
S y n d i a n t   A d v a n t a g e s

- 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
- Meets form factor requirements for ultra-small embedded applications
- High quality image and video reproduction
- Fast LC response and sophisticated drive algorithms enable saturated colors and high illumination on
- 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