

SI-3300RGB MegaCamera™
 3.2 Megapixel, 10-Bit, 45MHz
 Progressive Scan Digital Camera

Silicon Imaging Inc.



Silicon Imaging is proud to continue its innovation in high-resolution color vision camera. Driven by the growing demand for consumer Digital Still Cameras, CMOS sensors are continuing to break technical barriers and surpass the performance characteristics of CCD's in many photonic, imaging and consumer applications. By utilizing a single highly integrated CMOS device, which incorporates Megapixel sensing areas, timing generation, signal processing and high bandwidth outputs, Silicon Imaging has developed a very compact, low-power, ultra high speed Megapixel digital camera system.

2048 x 1536 Megapixel - 3.2MP Resolution

The SI-3300 is an all-digital CMOS camera that delivers 3.2 Million pixels of resolution and is capable of running at over 10 frames/second at its full 2048 x 1536 resolution. The entire package is only 45 x 52 x 50mm (33 x 40mm x 22mm in PCB) and is small enough to be placed on a robot for semiconductor machine vision inspection or placed in an outdoor housing for remote surveillance. It is ideal for live visualization and handheld instrumentation.

10-Bits Sampling – Sub-Pixel Accuracy

The SI-3300 MegaCamera uses 10-Bit digitizers to sample the pixel data. Converting the pixel data directly to digital at the sensor head eliminates pixel-sampling jitter and enables accurate sub-pixel metrology, image analysis and improved live video reconstruction. A programmable clock which ranges from 20–67MHz allows for trade-offs in speed versus exposure time and lower noise.

90 FPS VGA Subsampling - Fast Preview

Ideal for high speed preview and focusing, the SI-3300 is capable of generating imagery at over 90 frames per second by reducing the size of the readout image in color subsampling mode. This entire imager is readout by skipping pairs of pixels (4:2) to maintain color information of neighboring bayer groups. In this way, the 640x480 accurately represents the full size image.

200 FPS Windowing

A small region of the imager can be readout at frame rates in excess of 200fps (ex. 200 x 100), with speed increasing with reduced vertical and horizontal settings. The window size and position can be adaptively changed on frame-by-frame basis.

Automatic Black Level Correction

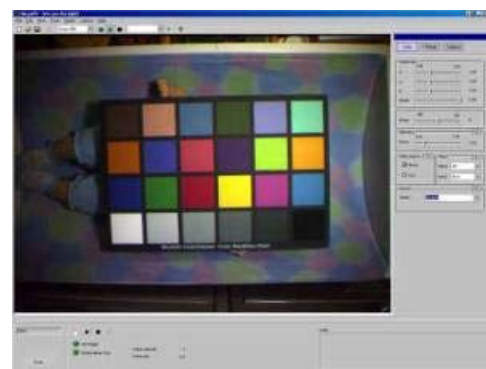
The SI-3300 has automatic black level calibration which measures the average value of 256 pixels from two dark rows of the imager for each of the four colors. The pixels are averaged as if they were light-sensitive and passed through the appropriate color gain. This average is then digitally filtered over many frames and compared to minimum and maximum acceptable thresholds for automatic correction.

USB2.0 Bus-Powered – 40MB/sec Transfers

For low-cost and portable connectivity, with data transfer rates up to 40MB/sec, the SI-1300U provide convenient capture using the High-Speed 480Mb/sec USB 2.0 interface. It is a bus-powered unit, consuming less than 500mA at 5VDC and will operate without any external power supply. The precision-machined C-mount housing includes an integrated tethered USB cable and optional 3-pin trigger/strobe connection. For OEM board level configurations, two General Purpose Outputs are accessible; Pull-Up and pull-down driven transistors to be used to control light sources and switches.

Win-XP™ Live Mode Kernel Driver

For applications which require a combination of high-resolution and streaming high-frame rate video images, Silicon Imaging has developed a custom driver which can request and capture double buffered images at the driver level. This method enables immediate request to camera for next image without user level software intervention. The double-buffers allow one image to be processed by the host PC, while another image is being readout from the camera and filled into the user allocated memory space.



FEATURES

- 2048 x 1536 Resolution (3.1 Million Pixels)
- 1/2" Imaging Format , 3.2um Square Pixel
- Rolling Shutter, Progressive scan
- 10 Bits per Pixel, 48MHz Sampling
- QXGA(12fps), UXGA(20fps), SXGA(27fps) & XGA(43fps)
- 7 ~ 45MHz Programmable Clock
- Auto Optical black level calibration
- Programmable Gain, Exposure & Clocks
- Auto Black Level Calibration
- Global Reset Triggering Option (-T Model)
- Color Bayer (RGB) Model
- Custom PCB Version
- USB2.0 High-Speed, 480Mb/sec Interface
- C-Mount Precision Machined Housing
- Image Capture & Color Processing SDK

SI-3300 MegaCamera USB 2.0 Specifications

SI-3300 Sensor:

USB2.0 High-Speed Interface & Control:

USB Speed	480Mb/sec (High-Speed)
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