About Cista

Cista Design Inc. is a start-up company that develops and delivers CMOS image sensors and imaging solutions for mobile handsets, automotive, consumer electronics and surveillance camera markets. Its R&D group is headquartered in the heart of Silicon Valley.

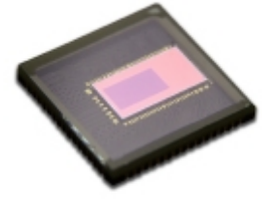
Cista collaborates closely with supply chain partner and customers including SMIC and SPRD to deliver a wide variety of CMOS image sensor technology for the most advance application.

Cista Design Inc.

2674 N First Street, STE 250
San Jose CA 95134 USA
Email: sm@cistadesign.com
Web: cistadesign.com

2017 New Product

CMOS Image Sensor: C2396



Application

- Automotive & Vehicle DVR
- Security and Surveillance
- Mobile Device
- HD Sports and Action Cameras

General Description

The C2396 camera chip is sophisticatedly integrated with a 1080p BSI H^3 Q-PIX CMOS image sensor of 1/2.7 inch optical format and on-chip ISP (image signal processor) that feature auto black level calibration, lens shading correction, bad pixel correction, automatic and manual exposure control and auto white balance.

The C2396 has a MIPI CSI-2 4-lane compliance serial interface of up to 4 data lanes interface. It consists of a 1936 x 1096 active pixel sensor (APS) array that's capable of operating at 1080p 120 frames per second (FPS), 1080p 4-expsure HDR 60 FPS and 1080p 4-exposure HDR 30 FPS. In addition to featuring superior low-light sensitivity and low dark current performance, a better and clear image is achieved through significant reduction of fixed pattern noise through an on-chip 10-bit/12-bit ADC, programmable gain control and correlated double sampling. The C2396 also incudes a 32-kbit one-time programming (OTP) memory.

The C2396 camera chip is suitable for automotive, security and surveillance applications as well as low profile camera module packaging which is available in chip-scale package (CSP).

Key Benefits

- 4-Exposure HDR Mode
- High Sensitivity
- Flexible RGB-IR Pattern
- Device Temp. up to 120 °C
- Low Fixed Pattern Noise

Product Features

- Cista 3.0 µm BSI H^3 Q-Pix technology
- Image Sensor Processor function: BPC, ABLC, AEC
- Dedicated I^2C ID pin select
- Multiple Camera Frame Sync
- On-Chip Temperature Sensor
- Column and Row Sub-Sampling
- Ultra-high Precision on-Chip PLL

HDR Mode and RGB-IR Mode

The C2396 supports high dynamic range (HDR) mode up to 4 exposures. It uses Cista's advanced H^3 Q-Pixel technology to achieve a dynamic range of up to 120 dB, and dramatically minimizes motion ghost artifacts compared with many typical HDR image sensors.

The C2396 also support RGB-IR mode to capture both RGB and IR images in one sensor which reduces both the cost for the system and space required for multiple sensors. Combined with HDR mode, the sensor is the ideal choice for security and automotive application.

Key Specifications

Optical Format		1/2.7-inch.
Active Pixel Array(1080P)		1936H x1096V
Pixel Size		3.0µm x 3.0µm
Color Filter Array		RGB Bayer pattern
Chief Ray Angle		9° Linear
Shutter Type		Electronic rolling shutter
Maximum Frame Rate		1080p 120fps@10bit 1080p 60fps@12bit 1080p 2-exp HDR 60fps 1080p 4-exp HDR 30fps
Power Supply	AVDD	3.2 -3.6V (3.3V nominal)
	I/O	1.7 -3.6V (1.8V nominal)
Output Formats and Interfaces		10-bit /12-bit RAW MIPI CSI-2 4-lane
Operating Temperature		-30°C to TBD
Storage Temperature		-40°C to TBD
Die Dimensions (μm^2)		10180 x 5510

Functional Block