CMOS sensor rollouts include camera SoC

John H. Day - June 13, 2002

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San Jose, Calif. - IC Media Corp. here and Micron Technology Inc. (Boise, Idaho) have each introduced CMOS image sensors, albeit for different markets. Micron also unveiled a common-interchange-format (CIF)-size CMOS image sensor camera system-on-chip.

IC Media is aiming at the sweet spot in the consumer camera market with its 1.3-megapixel ICM-108B, while Micron's standalone sensors target low-power, low-cost mobile products like cell phones, smart phones and PDAs.

The announcements closely follow National Semiconductor Corp.'s launch of seven monochrome and color CMOS sensors (see May 27, page 92). The Santa Clara, Calif., company says its industrial-strength devices can detect faint patterns or fast-moving objects in such applications as lane tracking, collision avoidance, rearview mirrors and security cameras.

CMOS image sensors have been bright spots in the gloomy semiconductor market of the past two years. Compared with charge-coupled-device sensors, CMOS sensors cost less, consume less power and can more easily integrate additional functions.

IC Media's 1.3-Mpixel chip complements its earlier 1-Mpixel offering. Applications for the newer device include digital still cameras, digital camcorders, video phones, videoconferencing, PC cameras and security systems, as well as environmental monitoring and industrial image capture and analysis.

Ben Wu, president and chief executive officer, said IC Media's color-imaging chip provides sufficient resolution for most digital photography needs. The device incorporates a 1,280 x 1,024-pixel sensor array that can operate at up to 30 frames per second and subsample at quarter (1/4) and quarter-quarter (1/16) megapixel resolutions. Its pixels measure 6 x 6 microns and its sensor area, 7.68 x 6.144 mm.

An internal 11-bit A/D converter, together with timing circuitry, performs correlated double sampling. The chip's output is 10-bit raw data that can be fed to other digital signal processor, color processing or compression chips.

The ICM-108B is in production, packaged in a ceramic LCC48 and priced at $12.50 in 100,000-unit quantities.
Micron Technology's MI-SOC-0133 system-on-chip (SoC) devices incorporate the company's MI-0133 image sensors, which are also sold separately. The sensors and SoC both support CIF resolution (352 x 288 pixels). "Offering both devices allows our customers to incorporate either the complete camera-on-a-chip solution or the standalone image sensor," said Shawn Maloney, director of marketing for Micron Imaging. Both provide a progressive scan of up to 30 frames/s for video, and they pack an on-chip, 8-bit A/D converter.

Micron's sensor typically consumes less than 45 milliwatts at 30 frames/s and less than 30 mW at 15 frames/s. The on-chip A/D provides 8 bits per pixel. Frame- and line-valid signals are output on dedicated pins, as is a pixel clock that is synchronized with valid data. The sensor is priced at $4 in sample quantities.

The camera SoC, priced at $5.25 in sample quantities, combines the CMOS image sensor core with Micron's second-generation digital image flow processor technology, which enables it to capture high-quality color images and do other processing functions.

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