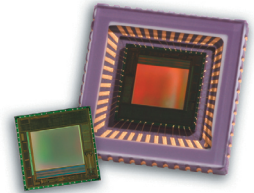*Digital*Clarity™

1.3-Megapixel, 1/3-Inch, Low-Power CMOS Image Sensor Camera System-on-a-Chip

Features

- DigitalClarity™ CMOS imaging technology
- Ultra low-power, low-cost, progressive scan CMOS image sensor
- 1.3-megapixel resolution (1,280H x 1,024V)
- 1/3-inch optical format
- 15 frames per second (fps) at 170mW, full resolution; 30 fps at 90mW, VGA resolution
- Superior low-light performance
- On-chip image flow processor that performs color recovery and correction, sharpening, gamma correction, lens shading correction, and on-the-fly defect correction
- Image decimation to any size with fluid zoom and pan
- Automatic exposure, white balance, black level offset correction, flicker detection and avoidance, color saturation control, defect identification and correction, and aperture correction
- Fully automatic Xenon- and LED-type flash support, including fast exposure adaptation
- Multiple parameter contexts for fast, easy mode switching
- Camera control sequencer that automates video clips and snapshots with or without flash
- Output FIFO and integer clock divider for uniform pixel clocking
- On-chip, 10-bit analog-to-digital converter
- Two-wire serial interface
- ITU_R BT.656 (YCbCr), 565RGB, 555RGB, and 444RGB raw and processed output data formats

Low Noise, Low Power, Better Low-Light Performance

Developed by a world-renowned lineup of imaging experts, Micron Technology's new MT9M111, a 1.3-megapixel, low-power CMOS image sensor, provides superior low-light performance, achieving CCD-quality sensitivity levels. Equipped with Micron's progressive, low-noise DigitalClarity technology, the high-performance MT9M111 delivers brilliant color images even under some of the poorest lighting conditions, making it ideal for next-generation cell phone and PDA designs.

Get to Market Faster

We've incorporated the innovative image sensor core of our MT9M011 with our third-generation digital image flow processor technology to create the MT9M111. This complete camera system-on-a-chip solution integrates sophisticated functions like color recovery and correction, lens shading correction, and on-the-fly defect correction directly on the chip itself, minimizing device form factor as well as needed board space. And because it requires fewer parts, the MT9M111 simplifies design compared to CCDs and enables a much faster time-to-market.

Applications

- Cellular phones
- PDAs
- Toys
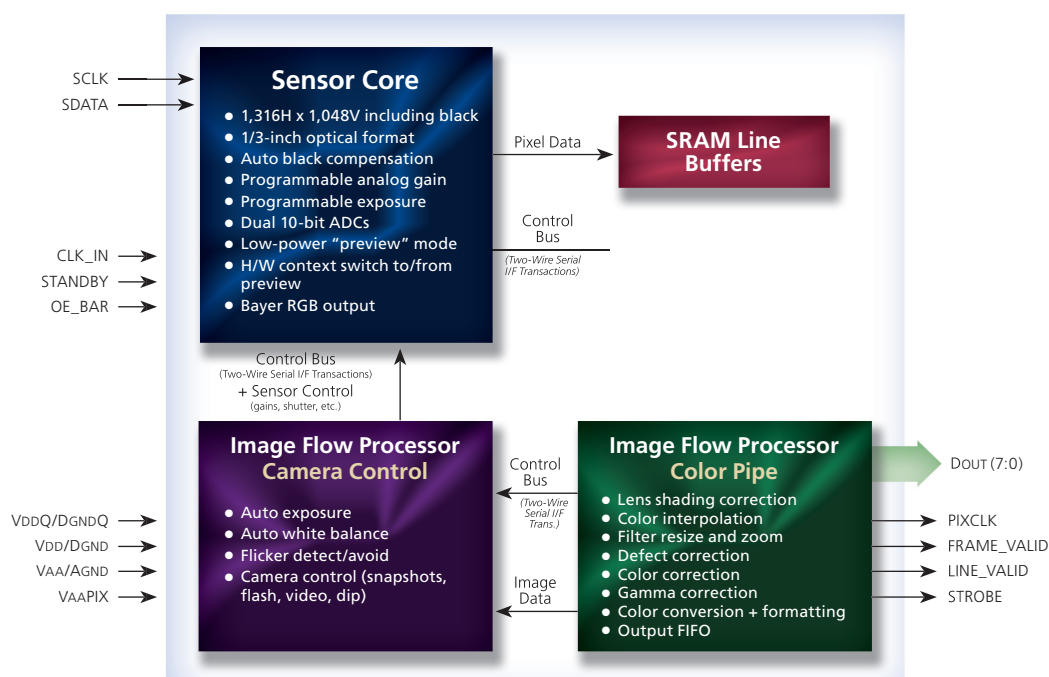- Other battery-powered products

To learn about all the exciting possibilities our MT9M111 provides, contact your Micron® Imaging representative or visit our Web site at *www.micron.com/imaging*.

Micron®

Specifications

- **Pixel Size:** 3.6µm x 3.6µm

- **Array Format: (active)** 1,280H x 1,024V

- **Imaging Area:** 4.6mm x 3.7mm

- **Color Filter Array:** RGB Bayer color filters

- **Optical Format:** 1/3 inch (5:4)

- **Frame Rate:** 15 fps @ 1,280H x 1,024V, 30 fps @ 640H x 512V

- **Scan Mode:** Progressive

- **Shutter:** Electronic rolling shutter (ERS)

- **Automatic Functions:** Exposure, white balance, black level offset correction, flicker detection and avoidance, color saturation control, defect identification and correction, aperture correction

- **Programmable Controls:** Exposure, white balance, blanking, color, sharpness, gamma, lens shading correction, left-right and up-down image reversal, zoom, windowing

- **Flash Support:** Xenon and LED

- **ADC:** 10-bit, dual on-chip

- **Data Rate:** 27 megapixels per second (master clock, 54 MHz)

- **Responsivity:** 1.0 V/lux-sec (550nm)

- **Dynamic Range:** >71dB

- **Signal-to-Noise Ratio:** 44dB (MAX)

- **Supply Voltage:** 2.8V ±0.3V

- **Power Consumption:** 170mW (@ 15 fps), 90mW (@ 30 fps)

- **Operating Temp. Range:** -30°C to +70°C

- **Package:** 44-ball iCSP or die

Block Diagram

www.micron.com

Micron®