Build a Complete Camera in a Compact Design

Start with Aptina's 1/6-Inch, Ultra Low-Power, VGA CMOS Camera System-on-a-Chip

Extensive Features in a Compact Footprint

- Ultra low-power, low-cost, progressive scan CMOS image sensor
- VGA resolution (640H x 480V)
- 1/6-inch (4mm) optical format that enables smaller, lower-profile camera modules while maintaining extraordinary image quality
- 30 frames per second (fps) at VGA resolution
- On-chip image flow processor for color recovery and correction, sharpening, gamma correction, lens shading correction, and on-the-fly defect identification and correction
- Image reduction 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
- Camera control sequencer that automates video clips and snapshots with or without a flash
- On-chip, 10-bit analog-to-digital converter (ADC)
- Two-wire serial interface
- ITU_R BT.656 (YCbCr), 565RGB, 555RGB, 444RGB, raw Bayer, or processed Bayer output data formats

Design-In Tiny Cameras Without Sacrificing Performance

Aptina's compact MT9V112 measures just 4mm diagonally. Its miniature design preserves valuable real estate, and even creates excess board space. Added to your design, the MT9V112 promises smaller form factors for cell phones, PDAs, and other mobile/wireless products.

Yet, that's just the beginning. The MT9V112 is a complete camera system-on-a-chip (SOC). It requires only a power supply, lens, and clock source for basic operation. We've also included an advanced on-chip image flow processor that eliminates extra space-devouring components from your design. It performs color recovery and correction, sharpening, programmable gamma correction, on-the-fly defect identification and correction, and numerous automatic functions. All are programmable through a two-wire serial interface.

Extraordinary Image Quality

The ultra low-power MT9V112 boasts of exceptional image quality with Aptina's revolutionary technology, which reduces noise levels and image lag considerably. The MT9V112 outputs stunning progressive scan images, even in the lowest light. Plus, it enables image reduction to any size while maintaining smooth, uninterrupted motion. Now your customers can have greater flexibility and control when capturing continuous video or single frames.

Applications

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

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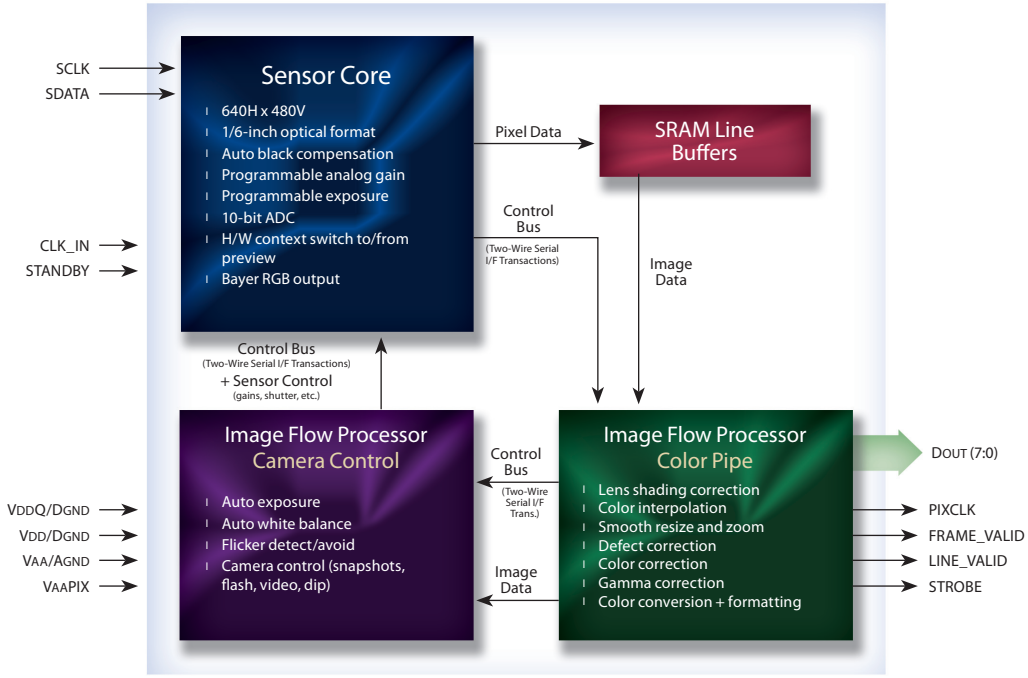
Specifications

Pixel Size:	3.6µm x 3.6µm
Array Format (Active):	640H x 480V
Imaging Area:	2.30mm x 1.73mm
Color Filter Array:	RGB Bayer color filters
Optical Format:	1/6-inch
Frame Rate:	30 fps @ 27 MHz
Scan Mode:	Progressive
Shutter:	Electronic rolling shutter (ERS)
Window Size:	Arbitrary (including VGA, QVGA, CIF, QCIF)
Automatic Functions:	Exposure, white balance, black level offset correction, flicker detection and avoidance, color saturation control, defect identification and correction, aperture correction
Flash Support:	Xenon and LED
ADC:	10 bit, on-chip
Programmable Controls:	Exposure, white balance, blanking, vertical blanking, color, sharpness, gamma correction, lens shading correction, left-right and top-bottom image reversal, zoom, windowing
Data Rate:	12-13.5 megapixels per second (master clock, 24 MHz–27 MHz)
Responsivity:	1.0 V/lux-sec (550nm)
Signal-to-Noise Ratio:	44dB (MAX)
Supply Voltage:	Digital I/O: 1.7V–3.1V Digital Core: 1.7V–1.9V, 2.5V–3.1V Analog: 2.5V–3.1V
Power Consumption:	76mW at 1.8V, 15 fps
Operating Temp. Range:	-30°C to +70°C (junction)

Block Diagram



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