Mobile Phone User or World-Class Photographer?

Inspire Your Customers with Micron's 2-Megapixel CMOS Camera SOC with Auto Focus, Real-Time JPEG Compression, and Best-in-Class Image Quality

Features

- DigitalClarity™ CMOS imaging technology
- Ultra low-power, low-cost, progressive scan
- 2-megapixel resolution (1,600H x 1,200V)
- 1/3.2-inch optical format
- 15 frames per second (fps) at full resolution
- Integrated auto focus and optical zoom
- Real-time JPEG encoder
- Integrated microcontroller for flexibility
- On-chip image flow processor for single-chip camera module
- On-chip auto focus with configurable GPIO interface
- Mechanical shutter support
- Numerous automatic functions for on-the-fly image correction and enhancement
- Fully automatic Xenon- and LED-type flash support, including fast exposure adaptation
- On-chip, 10-bit analog-to-digital converter
- Two-wire serial interface
- ITU_R BT.656 (YCbCr), 565RGB, 555RGB, 444RGB and raw output data formats
- JPEG 4:2:2 and 4:2:0 output

Customers Will View Your Phones in a Whole New Way

Rodin, Kurosawa, Warhol, Baishi. Could any of these artists have been as great without the right tools? Equip your customers with Micron's 2-megapixel MT9D111 and unleash their creativity. They'll discover a new way of viewing the world—and their phones. No matter where or when, your customers can capture the extraordinary, the mundane, and the inspirational. All they need is the right tools.

Sophisticated On-Board Image Processing Eliminates Extra Parts

Our new ultra low-power CMOS image sensor is a complete, innovative camera system-on-a-chip (SOC). For basic operation, it requires only a power supply, lens, and clock source. But it can do so much more.

With the MT9D111, designers can simply plug 'n play. Its on-chip image flow processor performs a host of image correcting and enhancing functions you'd normally need another part for, such as color recovery and correction; sharpening; gamma correction; and auto black level offset correction, exposure, white balance, lens shading, and flicker avoidance. Plus, it provides comprehensive support for auto focus, optical zoom, and a mechanical shutter for a genuine all-in-one solution.

Microcontroller for remarkable flexibility. To help you accurately target your up-and-coming artists no matter where in the world they live, the MT9D111 includes an on-chip microcontroller for the image processor. With it, you can be as creative as your customers and produce phones with varying features and functions from a single design.

Unparalleled CMOS Image Quality

Micron's exclusive DigitalClarity technology dramatically reduces noise levels in our CMOS sensors. While some camera phones generate shots that look like abstract paintings, your MT9D111-equipped phone will deliver sharp, crystal-clear images. Our sensor provides best-in-class image quality—whether capturing continuous video or single frames—even in extremely low light.

For Designers Who Demand More For Customers Who Aspire to More

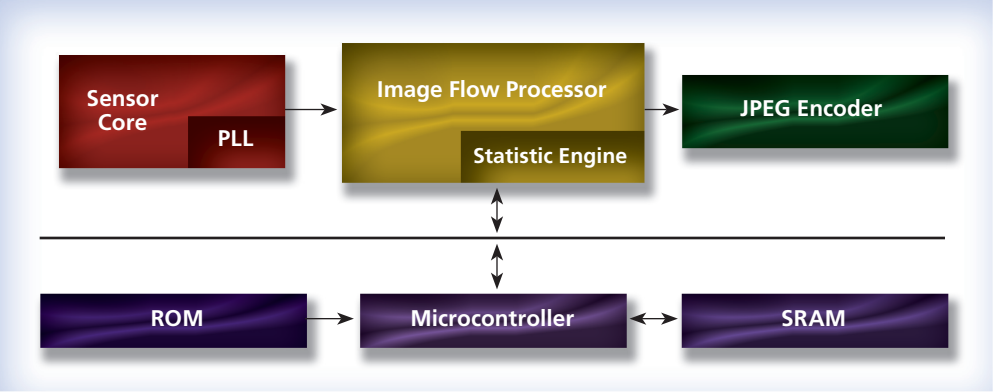
Micron's MT9D111 incorporates a number of features and functions to streamline your designs and improve your customers' imaging experiences. To order, call us at 208-368-3900 or visit us on the Web at ***www.micron.com/imaging***.

Micron®

Specifications

- **Pixel Size:** 2.8µm x 2.8µm
- **Array Format (Active):** 1,600H x 1,200V
- **Imaging Area:** 4.73mm x 3.52mm
- **Color Filter Array:** RGB Bayer color filters
- **Optical Format:** 1/3.2 inch
- **Frame Rates:** 15 fps (1,600 x 1,200) and 30 fps (800 x 600)
- **Scan Mode:** Progressive
- **Shutter:** Electronic rolling shutter (ERS) with global reset
- **Window Size:** Programmable to any size equal to or less than 2-megapixel
- **Pixel Binning:** 2 x 2
- **Automatic Functions:** Exposure, white balance, black level offset correction, flicker detection and avoidance, color saturation control, defect identification and correction, aperture correction, focus, GPIO
- **Programmable Controls:** Exposure, white balance, horizontal blanking, vertical blanking, color, sharpness, contrast, gamma, lens shading correction, left-right and top-bottom image reversal, zoom, windowing, auto focus, GPIO
- **ADC:** 10-bit, on-chip
- **JPEG:**
  - Sequential DCT (baseline) ISO/IEC 10918-1 JPEG compliant
  - YCbCr 4:2:2 and 4:2:0 format compression
  - Programmable quantization tables
  - Support for three pairs of quantization tables – two pairs serve as backup for buffer overflow
  - Programmable Huffman tables
  - 2 AC, 2 DC tables – separate for luminance and chrominance
  - Quality: compression ratio control capability
- **Auto Focus Support:** Snapshot, continuous or video, locked, focus-free, and manual modes
- **Lens Actuator Interface:** Programmable GPIOs
- **Flash Support:** Xenon and LED
- **Responsivity:** 1.0 V/lux-sec (550nm)
- **Master Clock:** 6 MHz–80 MHz (integrated PLL)
- **Signal-to-Noise Ratio:** >41dB (MAX)
- **Supply Voltage:** Digital I/O: 1.7V–3.1V
Digital Core: 1.7V–1.95V
Analog: 2.5V–3.1V
- **Power Consumption:** <150mW (@ 30 fps)
- **Operating Temp:** -30°C to +70°C
- **Shipping Options:** Die and iCSP package

Block Diagram



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Products are warranted only to meet Micron's production data sheet specifications. Products and specifications are subject to change without notice.