

MT9S311



Image Signal Processor
137-Ball BGA or Die

ISP Companion Chip for High Definition Video

- 1 HD Video**
720p and 1080p at 30 fps and 27 fps, respectively, for videos and previews.
- 2 Perfect Compatibility**
Specifically designed for Aptina's 3-megapixel to 5-megapixel CMOS image sensors so that you get the best possible images and perfect compatibility.
- 3 Camera-Shake Correction**
Includes motion-adaptive exposure, anti-shake technology to compensate for camera movement and provides crystal clear images with reduced shake artifacts.
- 4 Automatic Image Processing**
Provides automatic image correction and enhancement as well as on-chip JPEG compression, programmable image overlay, and xenon and LED flash support.
- 5 Dual Camera Support**
Process images and video from a primary and secondary (VGA) camera, using parallel or serial interfaces.

Applications

- Surveillance
- Digital video recorders
- Mobile
- PC cameras



How to Buy

Visit Aptina.com to find qualified distributors or to request access to NDA data sheets and other technical documents.

Features

- Support for dual cameras at resolutions up to 5 megapixels
- Motion-adaptive exposure control for reducing shake artifacts
- Snapshot mode: 3Mp @ 24 fps or 5Mp @ 15 fps
- Video and preview mode supports 720p at 30ps via YUV420 or YUV422 outputs
 - 1080p – YUV420 – max 27 fps
 - 1080p – YUV422 – max 20 fps
- Automatic image correction and enhancement
- On-chip JPEG compression
- Configurable gamma correction based on scene brightness
- Arbitrary image scaling with anti-aliasing
- Xenon and LED flash support with fast exposure adaptation
- Selectable output data format: YCbCr, YUV420, YUV422, 565RGB, 555RGB, 444RGB, JPEG 4:2:2, JPEG 4:2:0, and processed Bayer
- VGA to 5-megapixel support
- Serial (MIPI/CCP2) and parallel interfaces—both input and output
- Programmable I/O slew rate
- Package: 7.0mm x 7.0mm x 1.0mm 137-ball BGA

Specifications

Input/Interface

- Primary Camera: CCP2 @ Class-2, 12-bit parallel interface at 99 MHz (shared)
- Primary Camera: Bayer-8, Bayer-10, Bayer-12, Bayer12-8, Bayer10-8, and Bayer8 + 2 input formats
- Secondary Camera: Dual-lane MIPI, CCP2 Class-2, 12-bit parallel interface at 99 MHz (shared)
- Secondary Camera: Bayer-8, Bayer-10, Bayer-12, Bayer12-8, Bayer10-8, Bayer8 + 2, YCbCr (ITU-R BT.601 progressive) input formats
- Input Clock Frequency: 6–54 MHz

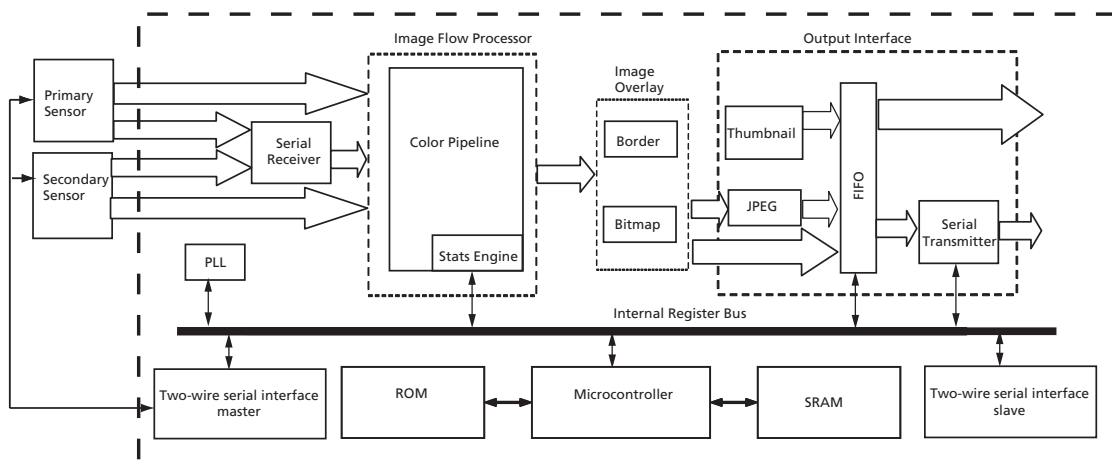
Output/Speed

- Output: Dual-lane MIPI, CCP2 Class-2, 8-bit parallel interface
- Output Format: YCbCr, YUV420, YUV422, 565RGB, 555RGB, 444RGB, JPEG 4:2:2, JPEG 4:2:0, and processed Bayer
- Maximum Frame Rate: 15 fps @ full resolution, 30 fps @ preview
- Maximum Output Clock: 96 MHz

Power

- Supply: Digital: 1.7–1.95V
Analog: 2.5–3.1V
I/O: 1.7–3.1V
PLL: 2.5–3.1V
Serial: 1.7–1.95V
- Consumption: 110µA, standby at +70°C

Block Diagram



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