Overview

The A7LW SoC enables new class of wireless wearable Full HD video cameras with lowest system power.

Designed for connected cameras, the A7LW can simultaneously capture full HD video while streaming a second mobile resolution live video or previously recorded video segment over a WiFi network for sharing on social websites or for personal storage. Ambarella's software enables the camera to be controlled wirelessly from a smart phone or other remote device.

Best-in-class image signal processing engine, temporal 3D noise filtering and breakthrough 3D electronic image stabilization provide exceptional video quality even in challenging lighting conditions.

Lowest power achieved through unique chip architecture and leading edge 32nm process technology allows uniquely compact form factor design.

Key Features

**Camera Functionality**
- Up to 32MP still image capture
- Full HD 1080p @ 30fps recording + seconded video streaming at up to 640x360 @30fps resolution
- Full HD 1080p @ 30fps recording + up to 8MP still image capture without interrupting recording

**Feature Rich Image Processing**
- 3D MCTF noise reduction for clean video with minimal motion blur
- Advanced 3D electronic image stabilization and horizon correction
- Many advanced spatial noise reduction filters
- High Dynamic Range (HDR) capture and processing
- Dewarping support for small factor, wide angle lenses

**Advanced Hardware And SoC Features**
- Extremely low power 32nm architecture
- High performance 600 MHz ARM 11
- Support WiFi and BT connectivity and video streaming
- Ultra-low power sleep modes and ultra-fast wake-on BT/WiFi
- Ultra-compact 9x9 and 11x11 packages

Block Diagram
A7LW High Quality 1080p60 DSC Camera Development Platform

The A7LW High Quality 1080p60 DSC Camera Development Platform contains the necessary tools, software, hardware and documentation to develop a state-of-the-art 1080p60, hybrid DV/DSC, network-enabled camera design.

**Hardware Platform**
- Main board with A7LW and sensor board with C/CS mount lens
- Sensor: Aptina, OmniVision, Samsung, Sony — many choices available

**Software Development Kit (SDK)**
- eSol ultron OS and development tools
- Full support of dual OS simultaneous operation (Linux+ultron)
- Demonstration DV/DSC camera application with full source code
- Extensive and fully documented middleware API library suite

**Documentation**
- Programmer’s guide, application notes, API documents
- SoC data sheet, BOM, schematics and layout files

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<tr>
<th>General Specifications</th>
<th>Details</th>
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<tr>
<td><strong>Image Sensor Interface</strong></td>
<td>° 480 MPixels/s processing&lt;br&gt;° LVDS, sub-LVDS, SLVS/MLVS&lt;br&gt;° LVC莫斯, Parallel, MIPI</td>
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<tr>
<td><strong>Advanced Still Picture and Video Processing</strong></td>
<td>° High Dynamic Range (HDR) Support&lt;br&gt;° 3D color transform with arbitrary correction&lt;br&gt;° Still picture and video effects such as watercolor painting, drawing, miniature, pop color, and soft focus&lt;br&gt;° Real time geometric distortion (warp) filter&lt;br&gt;° Better correction of warping effects of wide angle lens systems or small form factor lenses&lt;br&gt;° Advanced rolling shutter compensation&lt;br&gt;° 3D image stabilization and horizon tilt correction&lt;br&gt;° BSI sensor black level correction support</td>
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<td><strong>Powerful CPU for Rich GUI Experience</strong></td>
<td>° 600 MHz ARM1136J-S</td>
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<td><strong>Audio Processing</strong></td>
<td>° AAC/AC3 stereo encode/decode&lt;br&gt;° AC3 5.1 channel encode&lt;br&gt;° MP3 decode support</td>
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<td><strong>Advanced Video and Display Processing</strong></td>
<td>° BP/MP/HP H.264 Level 5.0 and MJPEG encode&lt;br&gt;° Crop, mirror, flip, scale functions and LCD rotation&lt;br&gt;° Alpha-blending OSD; text, overlays&lt;br&gt;° Multiple video output ports</td>
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<tr>
<td><strong>Low Power and Low Cost DDR Interface</strong></td>
<td>° 16-bit DDR3, DDR3L, DDR2, LPDDR2 up to 400 MHz</td>
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<td><strong>Peripheral Support</strong></td>
<td>° Two SDIO for SD Card and BT/3G/4G/WiFi networking&lt;br&gt;° USB 2.0 device&lt;br&gt;° BT.656/1120 YUV 108MHz video in/out&lt;br&gt;° LCD and HDMI 1.4 with CEC support&lt;br&gt;° SSI/SPI, IDC, I2S, PWM, GPIO, UART, NAND, JTAG&lt;br&gt;° Real-time clock and watchdog timer</td>
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<tr>
<td><strong>Physical</strong></td>
<td>° 32nm LP CMOS technology&lt;br&gt;° Operating temperature: 0˚C to +70˚C&lt;br&gt;° 328-pin FBGA package, 9mm x 9mm, 11mm x 11mm, 14mm x 14mm</td>
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