



A7LS - Low Power 1080p60 Sports Camera SoC

Overview

The A7LS SoC enables a new class of wireless sports 1080p60 video cameras with low system power and high performance.

Designed for connected sports cameras, the A7LS can simultaneously capture full HD video while streaming a second mobile-resolution live video over a WiFi network for preview or sharing. Ambarella's software enables the camera to be controlled wirelessly from a smart phone or other remote device. A unique architecture and 32nm process technology minimize power consumption while maximizing performance. Burst capture and time-lapse modes provide powerful still image capture tools.

Key Features

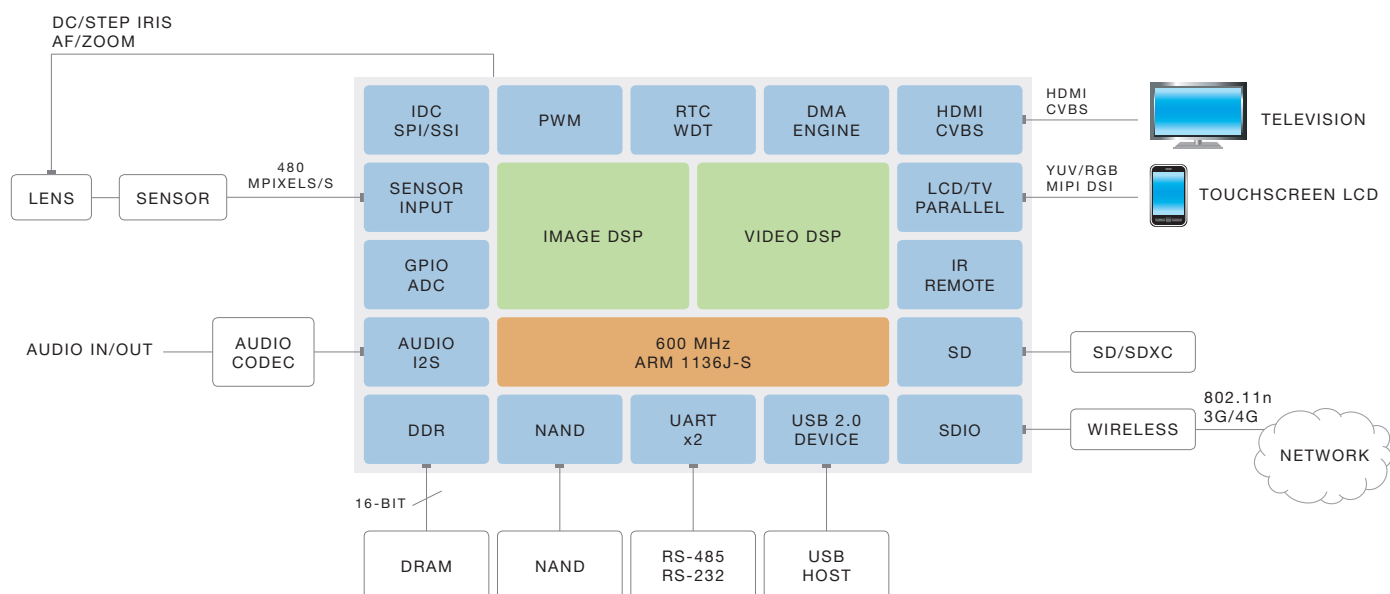
High Performance Image And Video Processing

- Up to 32MP still image capture
- Full HD 1080p @ 60fps recording + second video streaming at up to WQVGA
- 3D MCTF noise reduction for clean video with minimal motion blur
- Many advanced spatial noise reduction filters
- Dewarping support for small form factor, wide angle lenses

Advanced Hardware And SoC Features

- Extremely low power 32nm architecture
- High performance 700 MHz ARM 11
- Supports WiFi connectivity and video streaming
- Compact 11x11 and standard 14x14 packages

Block Diagram





A7LS - Low Power 1080p60 Sports Camera SoC

General Specifications

Image Sensor Interface

- 480 MPixels/s processing
- LVDS, sub-LVDS, SLVS/MLVS
- LVCMOS, Parallel, MIPI

Advanced Still Picture and Video Processing

- High-speed RAW capture of 16MP at 30fps
- High Dynamic Range (HDR) Support
- 3D color transform with arbitrary correction
- Electronic Image Stabilization (EIS)
- Advanced rolling shutter compensation
- BSI sensor black level correction support
- Automotive smart auto exposure (AE) with scene detection, object detection and dynamic AE
- Continuous looping, motion detection and event-based / emergency video

Powerful CPU for Rich GUI Experience

- 700 MHz ARM1136J-S

Audio Processing

- AAC/AC3 stereo encode/decode
- AC3 5.1 channel encode
- MP3 decode support

Advanced Video and Display Processing

- BP/MP/HP H.264 Level 4.2 and MJPEG encode
- Crop, mirror, flip, scale functions and LCD rotation
- Alpha-blending OSD; text, overlays
- Multiple video output ports

Low Power and Low Cost DDR Interface

- 16-bit DDR3, DDR3L, DDR2, LPDDR2 up to 400 MHz

Peripheral Support

- Two SDIO for SD Card and BT/WiFi networking
- USB 2.0 device
- BT.656/1120 YUV 108MHz video in/out
- LCD and HDMI 1.4 with CEC support
- SSI/SPI, IDC, I2S, PWM, GPIO, UART, NAND, JTAG
- Real-time clock and watchdog timer

Physical

- 32nm LP CMOS technology
- Operating temperature: 0°C to +70°C
- 328-pin FBGA package, 11mm x 11mm, 14mm x 14mm

A7LS High Quality 1080p60 Sports Camera Development Platform

The A7LS 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 A7LS 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



Contact

US Office

Ambarella, Inc.
3101 Jay Street
Santa Clara, CA 95054

Website : www.ambarella.com

Contact : www.ambarella.com/about/contact/inquiries.html

Copyright Ambarella, Inc. All rights reserved. Ambarella, and the Ambarella logo are trademarks of Ambarella, Inc. All other brands, product names and company names are trademarks of their respective owners. The information in this document is believed to be reliable, but may project preliminary functionality not yet available. Ambarella, Inc. makes no guarantee or warranty concerning the accuracy and availability of said information and shall not be responsible for any loss or damage whatever nature resulting from the use of, or reliance upon it. Ambarella, Inc. does not guarantee that the use of any information contained herein will not infringe upon patent, trademark, copyright, or other rights of third parties. Ambarella, Inc. reserves the right to make changes in the product and /or its specifications presented in this publication at any time without notice.