Overview

The Ambarella A9SE SoC family delivers broadcast-quality digital video to a new generation of versatile sports and flying camera applications.

A9SE models range from low-power 1080p30 mainstream video processors up to high-performance systems supporting the 4K Ultra HD (UHD) encode standard, transcode, Wi-Fi capability and remote control.

The top-performing high-definition A9SE75 H.264 codec delivers recording at up to 4K x 2K resolution (encode and transcode), supports fast-action capture with loop recording for transmission over Wi-Fi to remote view finders, as well as remote control by handheld devices.

The A9SE75 SoC also includes a powerful 800 MHz dual-core Cortex-A9 ARM CPU that can be used to run flight control and optical flow algorithms for flying cameras, as well as a high-performance digital signal processing (DSP) subsystem with an Ambarella image sensor pipeline (ISP) and a dedicated hardware engine for 3D image stabilization.

Key Features

Flexible Low-Power Platform
- Dual-core ARM Cortex-A9 800 MHz CPU with 1-MByte L2 cache
- Fast Boot ThreadX/Linux Dual OS
- 28-nm low-power CMOS Process

High Resolution and Frame Rate Image Processing
- Up to 240 MPixel/s input pixel rate
- Encode performance up to 4Kp30 + 720p30
- 3D Electronic Image Stabilization (EIS) with rolling shutter correction
- 3D noise reduction (Motion Compensated Temporal Filter, or MCTF)
- Secondary sensor input for flying camera optical flow

Wireless Connectivity and Video Streaming Options
- USB Host for 4G Module Connectivity
- DMA UART for Bluetooth (BT) Module Connection
- Dual Encode for On-The-Fly Mobile Resolution Stream

Block Diagram

The diagram below illustrates a sports or flying camera design based on the Ambarella A9SE device.
A9SE Sports and Flying Camera Development Platform

The A9SE Sports And Flying Camera Development Platform contains the necessary tools, software, hardware and documentation to develop a small form factor, wearable or flying camera module.

Evaluation Kit (EVK)
- A9SE main board with connectors for sensor/lens board, peripherals
- Sensor board: Omnivision, Sony, and others
- Data sheet, BOM, schematics, and layout
- Reference application with C source code

Software Development Kit (SDK)
- Dual OS ThreadX / Linux with patches, drivers, tools, and application source code
- Royalty-free libraries for ISP, 3A, dewarp, and codecs
- Image tuning and manufacturing calibration tools
- Detailed documentation with programmer’s guide, application notes

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