

# **SSC9211**

## **Smart Web Camera Controller**

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**Preliminary Product Brief**

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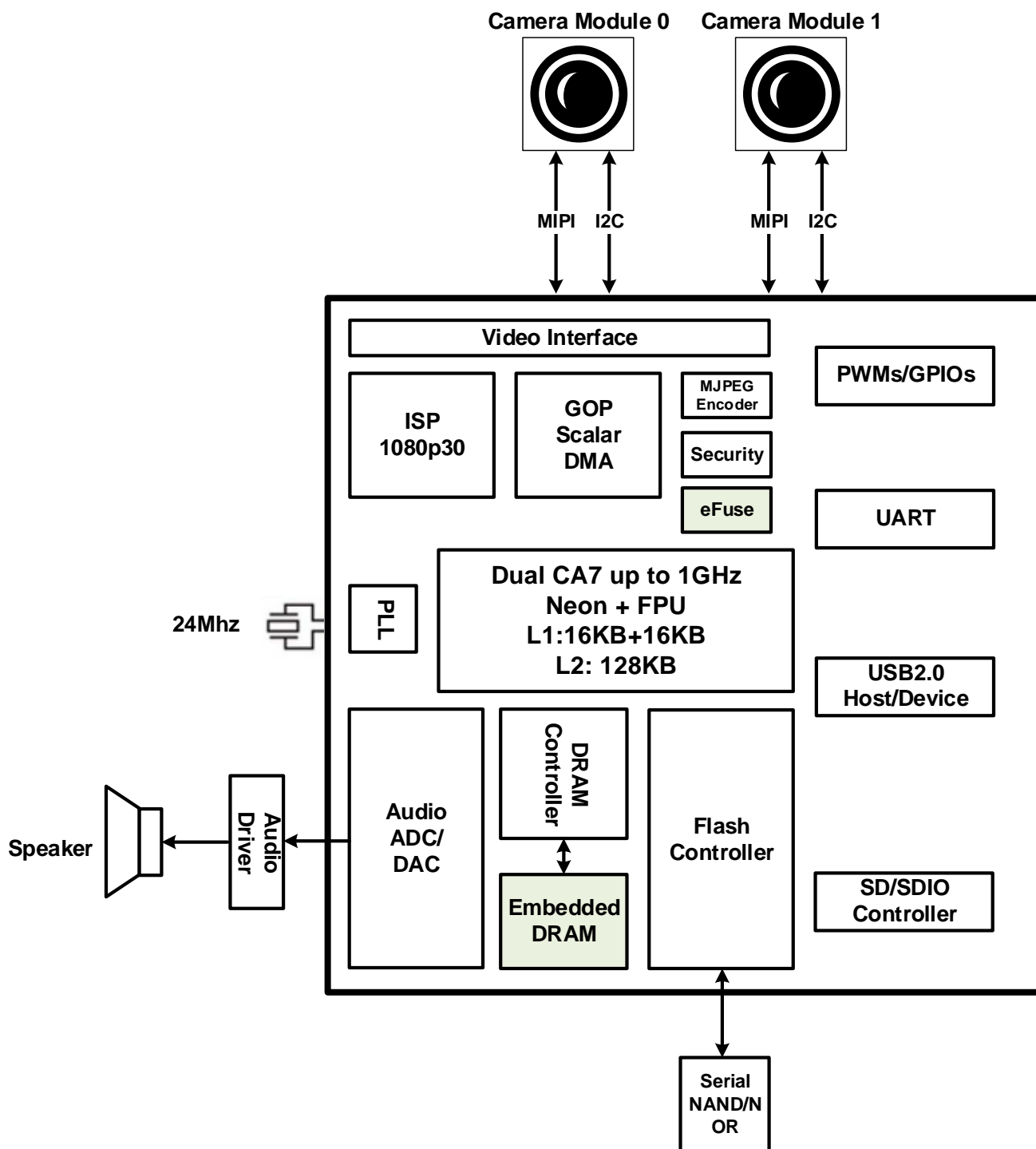
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## FEATURES

- **High Performance Processor Core**
  - ARM Cortex-A7 Dual Core up to 1 GHz
  - 16KB I-Cache/16KB D-Cache/128KB L2-Cache
  - Neon and FPU
  - Memory Management Unit for Linux support
  - DMA Engine
- **Image/Video Processor**
  - Supports max. two MIPI interfaces with 2 or 1 data lane and 2 clock lanes, up to 1.5GHz
  - Supports 8-bit BT.656 parallel interface
  - ISP processing performance up to 1920x1080p30
  - Bad pixel compensation
  - Temporal-domain Noise Reduction (3DNR)
  - Bayer domain Spatial-domain Noise Reduction (2DNR)
  - Bayer domain filter to remove purple false color in highlight regions
  - Optical black correction
  - Lens shading compensation
  - Auto White Balance (AWB) / Auto Exposure (AE) / Auto Focus (AF)
  - CFA color interpolation
  - Color correction
  - Gamma correction
  - Video stabilization
  - Frame buffer data compression and de-compression to save memory bandwidth
  - Wide Dynamic Range (WDR) with local tone mapping
- **JPEG Encoder**
  - Supports JPEG baseline encoding
  - Supports YUV422 or YUV420 formats
  - Supports max. resolution 1080p (1920x1080) with 30fps
- **Audio Processor**
  - Two stereo DMIC inputs
  - One mono DAC for lineout
  - ADC boost gain supports -6dB ~ 15dB or 0dB ~ 21dB with interval 3dB
- **NOR/NAND Flash Interface**
  - Supports 1/2/4-bit SPI-NOR / NAND flash with two chip selects
- **SDIO 2.0 Interface**
  - Compatible with SDIO spec. 2.0, data bus 1/4 bit mode
  - Compatible with SD spec. 2.0, data bus 1/4 bit mode
- **USB 2.0 Interface**
  - One USB2.0 configurable host and device
    - Host mode supports EHCI specification
    - Device mode supports 4 end points
- **DRAM Memory**
  - Embedded 16-bit 64MB DDR2 memory with max. 1333Mbps
  - Supports auto-refresh and self-refresh mode
- **Security Engines**
  - Supports AES/DES/3DES/RSA/SHA-1/SHA-256
  - Supports secure booting
- **Boot options**
  - ROM
  - SPI NOR
  - SPI NAND with ECC
  - USB
- **Peripherals**
  - Dedicated GPIOs for system control
  - Supports PWM/UART/SPI/I2C
  - Embedded generic timer and watchdog timer
- **Miscellaneous**
  - Built-in eFuse for device ID, AES key, chip configurations, etc.
  - Built-in SAR ADC with 3-channel analog inputs for different kinds of applications
- **Operating Voltage Range**
  - Core: 0.9V
  - I/O: 1.8V ~ 3.3V
  - DRAM: 1.8V (DDR2)
  - Power Consumption: TBD.
  - Operation temperature -20°C ~ 85°C
- **Package**
  - 68-pin QFN, 7mm x 7mm
  - Moisture Sensitivity Level: 3

### BLOCK DIAGRAM



## **GENERAL DESCRIPTION**

The SSC9211 is a highly integrated SOC product for Web CAM applications.

Based on ARM Cortex-A7 dual-core, the SSC9211 integrates image sensor interface, advanced ISP, high performance JPEG encoder, and other useful peripherals.

A typical utilization of the SSC9211 application processor is demonstrated in the block diagram. The completed system includes NOR/NAND flash, DRAM, SD card, and USB port, and diversified audio connection. Before output to the panel, the images can be enhanced with respect to brightness/contrast/saturation/sharpness to give the best picture quality.

The NOR or NAND flash is usually reserved for operating system and application software. Moreover, other peripherals like SAR ADC, Audio ADC/DAC, UARTs, PWMs, GPIOs and SPI are supported to realize applications with maximal flexibility.

The SSC9211 supports secure booting and personalization authentication mechanism for securing system. The AES/DES/3DES cipher engines could also help encrypt the compressed video/audio streams for privacy protection.

The SSC9211, powered by SigmaStar Technology, comes with a complete hardware platform and software SDK, allowing customers to speed up "Time-to-Market."