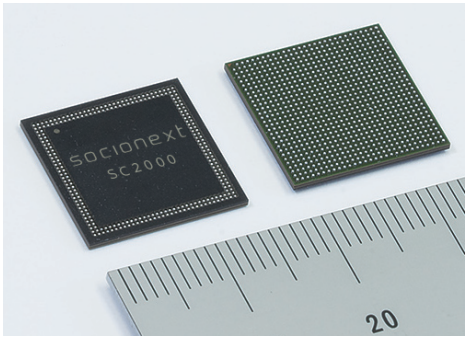
socionext
for better quality of experience

SC2000 (M10V) Milbeaut® Image Processor

The Socionext SC2000 image sensor processor (ISP) is ideally suited for the most challenging computer vision applications like action camera, drone camera, and high performance security cameras. The SC2000 features advanced functions such as 360-degree, real-time spherical stitching with multi cameras, image stabilization and image processing performance up to 1.2 Giga pixel per second while the power consumption as low as 1.7W.

High definition image quality, fast image processing at the lowest possible power is essential requirement for next generation imaging applications. The SC2000 makes it possible to stitch the video captured from at most 4 cameras, perform high frame rate video capture and high dynamic range (HDR) to prevent under/over exposure and capture vivid detailed images for both still and video captures up to 4Kp60.



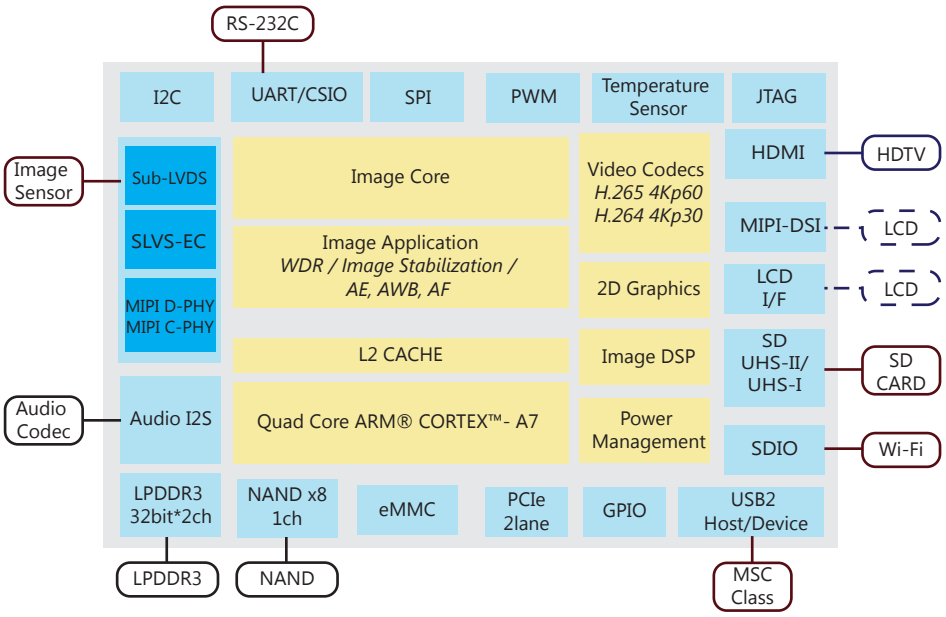
Key Features

Advanced Image Processing
- 1.2 Gpixels/s image processing
- Up to 4 simultaneous sensor inputs
- Full HD multi-exposure HDR
- 360° real-time image stitching with multi-cameras
- Excellent image stabilization

True 4K Video Encoding
- 4Kp60 H.265 encoding and H.264 streaming
- 4Kp120 sensor input over-sampling
- WDR and HDR techniques in 1080p

Low Power Consumption
- Under 2Watts at 4Kp60 recording
- Adaptive Voltage Control and Power Island
- Fast wake and warm boot

SC2000 (M10V) Block Diagram



SC2000 General Specifications

Imaging Processing
- DSLR-Grade Pixel Processing and Enhancement
- Advanced Noise Handling - Bayer/Luminance/ Chrominance/ Temporal
- 360° Real-time spherical multi-camera image stitching
- High Dynamic Range (HDR)

ISP Performance
- 4K60 H.265 encoding, 4Kp30 H.264 Streaming
- 1.2GPixel/sec Imaging Processing Speed, up to 4 Simultaneous Sensors
- 4Kp120 sensor input over-sampling for Highest Sensing Clarity

Physical
- 28nm HPC+ Process
- 15x15mm package, 0.5mm ball pitch
- Sensor Interfaces
  - MIPI D-PHY(16-lane, 2.5Gbps/lane) MIPI C-PHY (12 trio lanes, 4.7Gbps/lane)
  - Sub-LVDS (16-lane, 1.0Gbps/lane)
  - SLVS-EC(8-lane, 2.5Gbps/lane)
- Interfaces- PCIe Gen2, USB3.0(device), USB2.0(host/device)
- LCD interface- MIPI-DSI/16bit parallel
- TV interface- HDMI 2.0

Operation Temperature
- T=-10˚C ~ +85˚C

Flexible Analytics
- Dedicated DSP Engine for CV Algorithms. Open CV based APIs are available
- Dedicated Object Detection/ Tracking/ Recognition Engine; User-defined Objects Supported
- Backlight Compensation

Lowest Power Consumption
- Primary 4Kp60 H.265 + Secondary 1080p60 Recording under 2Watts
- Power Saving Design Methodology, incl. Adaptive Voltage Control & Power Island
- Fast Wake-Up/ Warm-boot Mechanism

Versatile System Configurations
- Quad-Core Cortex A7 w/ NEON, Single Cortex M0 Power Management
- Dual-OS System: RTOS + Linux 4.4.15 for System and User-Defined Applications
- SDRAM LPDDR3 (PoP)

Smart Kit (SC2000 Development Kit)

Item	Description
Hardware	"Smart Kit" board with IMX477 sensor module
Smart Setting Tool	IQ emulator for real board * Not including IQ Tuning Service
SDK	Source code for user application and documents

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ISP-FS-30143-05/2018