PRODUCT BRIEF

M1 ISP

车载高性能ISP芯片

Key Features

Advanced Image Processing

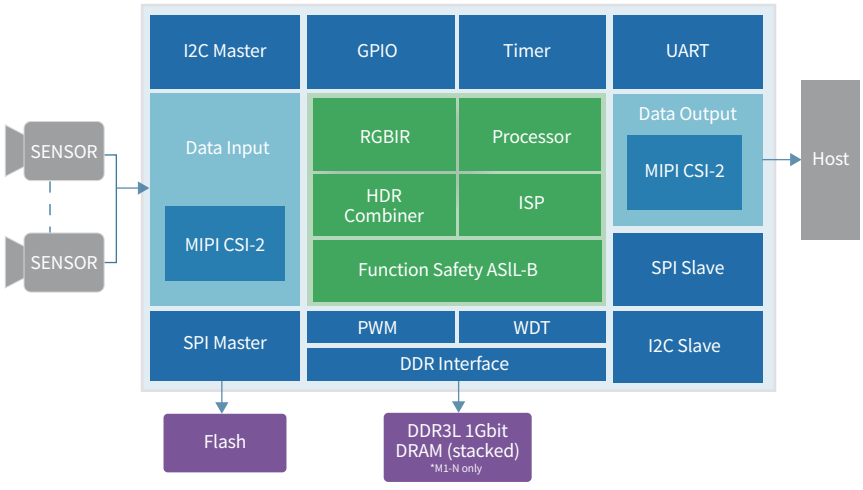
- Multi-exposure HDR
- Dual Camera support
- RGGB/RGB-IR/monochrome color filter pattern
- Advanced ISP function

Applications

- Driver Monitoring System (DMS)
- Occupant Monitoring System (OMS)
- Surround View System (SVS)
- Camera Monitor System (CMS)
- Forward View Camera (FVC)
- Rear View Camera (RVC)
- Side View Camera
- Stereo Camera
- E-Mirror

Overview

Flyingchip™ M1 is an advanced Image Signal Processor (ISP) designed for automotive camera applications. It features a range of image processing functions, including noise reduction and image enhancement algorithms for low light imaging, high-resolution RGB-IR processing, 2-4 exposure HDR, LED Flicker Suppression (LFS), dual 3MP@30fps HDR image processing, etc. M1 supports up to 4-exposure HDR that drives a dynamic range of up to 144dB. It can also support multiple data formats and different camera resolutions for single or dual camera applications. M1 is ISO26262 ASIL-B and AEC-Q100 Grade 2 compliant. In addition, M1 comes in two package options, including 9mm*9mm (QFN) and 7mm*7mm (BGA).



M1 Block Diagram

General Specifications

Processor Core
- RISC-V@32bit

Memory
- DDR3L 16bit 1Gb (stacked)(M1-N only)
- Efuse 2K bits

Peripheral Interfaces
- Multiple SPI, I2C, and UART
- Multiple GPIO ports, PWM
- Watchdog, Timer

Power Supply
- Analog 1.8V, I/O 1.8V, Core 0.9V, DDR 1.35V (M1-N only)

Camera Interface
- MIPI D-PHY CSI-2 v3.0 specification compliant up to 16 virtual channels two CSI-2 input ports and CSI-2 output port
- Supports 1/2/4 data lanes per port, up to 2.5Gbps/lane

HDR Image Signal Processor
- Up to Dual 3MP 30fps@HDR and Single 3MP 60fps@HDR
- Single 5MP 60fps@RGB-IR
- Single 8MP 30fps@HDR
- Multi-camera synchronization
- Programmable data types
- Supports multi-CFA pattern: RGGB, RGB-IR, MONO

Automotive Certification
- Supports ISO26262 ASIL-B hardware metrics
- Certified AEC-Q100 Grade 2

M1 Camera Development Platform

The M1 camera development platform contains the necessary tools, software, hardware, and documentation to develop a camera utilizing the M1 while supporting the development of customized features.

Evaluation Kit
- M1 main board with connectors for sensor/lens board and peripherals
- Sensor board: SmartSens
- Datasheet, BOM, schematics

Software Development Kit
- Image Tuning Tool
- Detailed documentation, including a programmer’ s guide and more

Contact Us

Flyingchip Microelectronics (Shanghai) Co., Ltd., as a wholly-owned subsidiary of SmartSens Technology, is committed to the R&D of advanced image processing technology and products. With thorough insights into the market needs, Flyingchip provides high-performance intelligent visual processing chip solutions for on-device computation applications across automobiles, etc. Through close cooperation with automobile manufacturers, Tier 1 suppliers, and algorithm solution providers, Flyingchip aims to bring intelligent vision technologies to new levels for future mobility.

- Building 8, Shanghai Business Park IV, No. 889 Tianlin Road, Minhang District, Shanghai
- Tel : 021-6485-3570
- E-mail : info@flyingchipmicro.com