

High-performance Coaxial HD ISP Chip

Zhejiang Chipup Electronics Co., LTD

XS5032 is an image signal processing chip designed for CMOS image sensors, specifically tailored for security cameras and vehicle surround-view cameras. It is mainly targeted at the coaxial HD cameras and automotive product market, featuring highly integrated peripheral components to simplify product design. The chip is equipped with a high-performance ISP, DNR for two frames, and 3DNR, offering processing capabilities up to 5M@15 fps. It supports standard-definition analog output via CVBS (960H) and high-definition analog output through HDcctv 720p, 1080p, 3M, 4M, 5M, 6M, and 8M. With an embedded CPU, XS5018A enables flexible software applications.

© Inventor of coaxial HD, with proprietary intellectual rights

© Integrated DAC, video buffer, and comparator

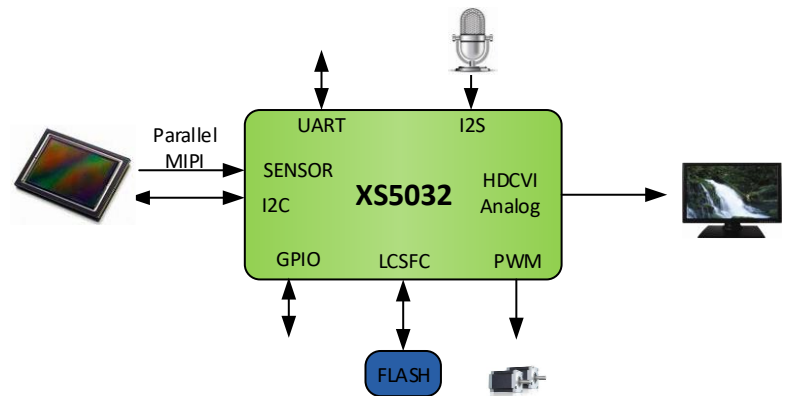
© Compatible with HDcctv and CVBS

© Supports up to 8M@15 fps

© High-performance 2D/3D noise reduction

© 2-frame wide dynamic range

© Supports HDCVI coaxial audio



● Video Input Interface

- Supports sensor parallel (DVP)
- Supports 4-lane MIPI up to 1.5 Gbps/lane
- Supports CSI-2, Version 1.01
- Supports D-PHY Specification, Version 1.1

● Video Output

- Supports CVBS resolution of 960H
- Supports HDcctv of 720P, 1080P, 3M, 4M, 5M, 6M, and 8M
- Supports dual analog output of CVBS and HDcctv

● Integrated Memory

- SIP SDRAM

● Audio Interface

- Supports an I2S input
- Supports master/slave mode
- Provides working clock for external audio ADC module
- Supports HDCVI coaxial audio output

● Image Signal Processing

- Supports 2D and 3D noise reduction
- Supports 2-frame DOL WDR
- Supports multi-frame exposure mode of the sensor
- Supports digital wide dynamic range
- Supports AE, AWE, and AF
- Strong light suppression
- Supports dynamic & static bad pixel correction
- Supports edge enhancement

- Contrast, saturation, brightness, and color adjustment
- Supports edge enhancement

● Video Processing

- Supports scaling and output cropping
- Supports privacy masking and OSD overlay

● Peripheral Interface

- I2C, UART, NFC, SPI, PWM, and GPIO
- Built-in low-speed ADC
- Integrated with high-speed video DAC, video buffer, and comparator

● Physical Specifications

- Core voltage: 1.1 V
- Common IO voltage: 3.3 V
- Built-in SDRAM voltage: 1.55 V
- Sensor & I2C IO voltage: 1.8/3.3 V

● Packaging

- TFBGA220, 11 mm × 11 mm, 0.65 pitch

● Video Format

- It supports various coaxial HD and SD formats, including
- 960H@25/30 fps
- 720p@25/30/50/60 fps
- 1080p@25/30/50/60 fps
- 4M@12.5/15/25/30 fps
- 5M@12.5/20/25 fps
- 6M@20 fps
- 8M@12.5/15 fps

- Integrated with video DAC, video buffer, and comparator, thus simplifying PCB design and reducing hardware BOM costs