



WM6251: High Quality Coaxial HD CMOS ISP

WM6251 is a cost effective and high quality CMOS sensor ISP (Image Signal Processor) chip for security and automatic camera application. The integrated high quality ISP including 2A (AE/AWB), 3DNR and other enhancement functions give stable and high quality images for various camera applications. WM6251 supports up to 5M@25fps HDcctv analog video output and CVBS analog video output.

WM6251 supports bidirectional audio data transmission over a single coaxial cable, enabling voice intercom with remote DVR.

WM6251 integrates video driver and comparator to achieve low BOM cost. The embedded powerful CPU enables flexible software application.

Features	
CPU	<ul style="list-style-type: none"> ● 32-bit RISC-V
VI	<ul style="list-style-type: none"> ● DVP 10bit @98MHz ● 2Lane MIPI CSI-2 @Max 1.5Mbps/Lane ● BT1120 for external ISP input
VO	<ul style="list-style-type: none"> ● Analog video output ● Supports HDcctv 1M/2M/3M/4M/5M RT analog video output ● Supports CVBS (960H) analog video output
ISP	<ul style="list-style-type: none"> ● 3DNR ● 2A (AE, AWE) ● BLC ● DRC ● DPC ● GIC ● LSC ● CCM ● SCC ● Edge enhanced process ● Reduced frame rate
Audio	<ul style="list-style-type: none"> ● Integrated audio codec for MIC input ● Supports down-stream audio data over video to remote DVR device ● Supports up-stream audio data over video decoding
Video and Graphic Processing	<ul style="list-style-type: none"> ● Scaling and crop ● Mask and OSD

Peripherals

Video Interfaces	VI	<ul style="list-style-type: none"> ● DVP 10bit ● 2Lane MIPI CSI-2
	VO	<ul style="list-style-type: none"> ● Analog video output
Other Interfaces		<ul style="list-style-type: none"> ● UART ● I2C ● SPI ● PWM ● ADC ● GPIO ● I2S

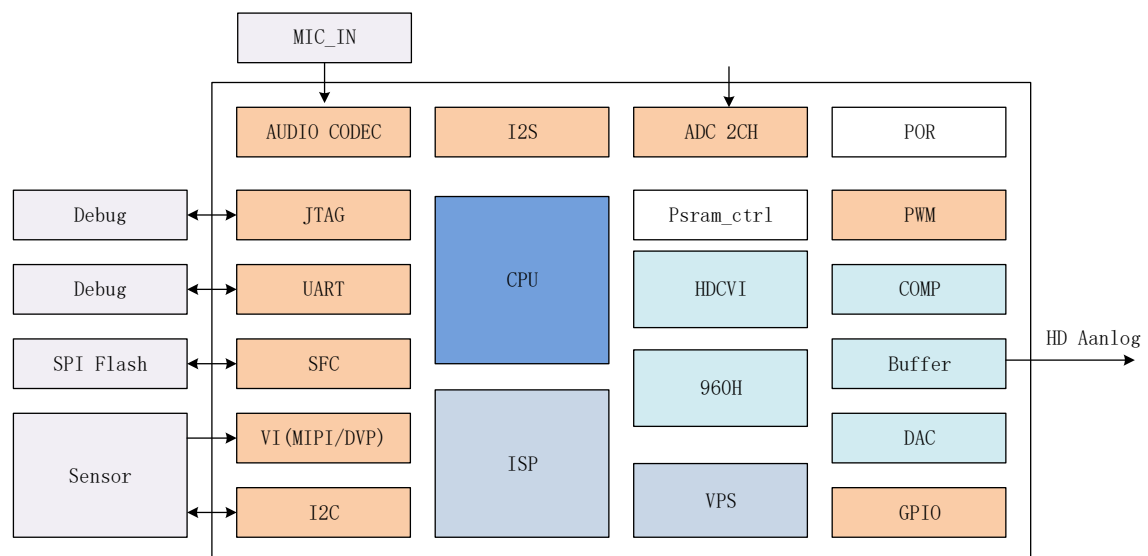
Startup

- Boot from SPI Flash

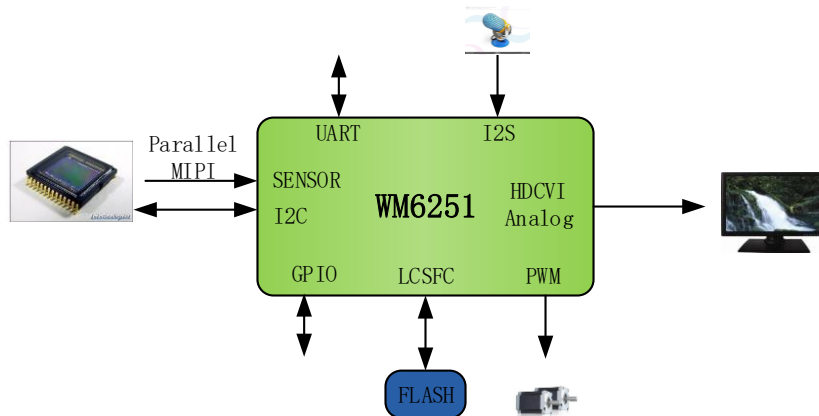
Physical Specs

Operating Voltage	<ul style="list-style-type: none"> ● 1.2V core voltage ● 3.3V I/O voltage ● 3.3V analog voltage ● 1.8V psram voltage ● 1.8V/3.3V sensor voltage 	
	Package	<ul style="list-style-type: none"> ● 7 mm × 7 mm QFN68

WM6251 Block Diagram



CMOS Camera Solution with Internal ISP



CMOS Camera Solution with External ISP

