



## WM7833: Advanced Digital IPC SoC for Modular Applications

WM7833 is a high-performance digital SoC designed specifically for the modular IPC market. This robust chip supports **dual-channel HD CMOS sensor inputs**, delivering superior image processing through cutting-edge ISP and video pre-processing technologies. With a maximum encoding capability of **3072×1728@30fps + D1@30fps**, WM7833 ensures high-quality multi-stream output, meeting the demanding needs of modern video surveillance systems.

At its core, WM7833 features an integrated CPU and a light CNN hardware acceleration unit, enabling powerful AI-driven analysis for applications such as human detection, vehicle detection, and face recognition. This makes it an ideal solution for comprehensive security and surveillance applications.

WM7833 also includes a wide range of integrated modules, such as POR, RTC, audio codec, USB 2.0 OTG, and EPHY. It is equipped with **128MB** of embedded DRAM and supports popular peripheral interfaces like I2C, SPI, SDIO, and UART. Additional features include the ability to output standard operating clocks for peripherals, as well as support for fast boot and AOV.

Features	
<b>Processor</b>	<ul style="list-style-type: none"><li>● ARM Cortex-A7 @ 1Ghz, 32KB I-Cache, 32KB D-Cache</li><li>● Integrated FPU. Supports NEON acceleration</li></ul>
<b>ISP</b>	<ul style="list-style-type: none"><li>● Supports static &amp; dynamic bad pixel correction and black level correction</li><li>● Supports 2D and 3D noise reduction</li><li>● Supports digital gain control, lens shading correction, and strong light suppression</li><li>● Supports 3A statistics</li><li>● Supports LWDR and 2-frame true WDR synthesis</li><li>● Supports GIC, color correction, and GAMMA correction</li><li>● Supports edge enhancement, dehazing, and digital light supplement</li></ul>
<b>Video Encoding</b>	<ul style="list-style-type: none"><li>● Real-time multi-stream H.265/H.264 encoding capability: Up to (3072 × 1728 + 720 × 576)@30 fps</li><li>● Encoding frame rate of 1 to 60 fps. Supports CBR/VBR bitrate control.</li><li>● Supports ROI encoding</li><li>● Supports smart encoding</li></ul>
<b>JPEG Encoding</b>	<ul style="list-style-type: none"><li>● Supports JPEG Baseline encoding: Snapping up to 3072 × 1728@30 fps</li></ul>

## Features

<b>Audio Encoding</b>	<ul style="list-style-type: none"><li>● Supports audio codec of G711, G726, and AAC</li></ul>
<b>Video and Image Processing</b>	<ul style="list-style-type: none"><li>● Supports frame rate control of 1 to 60 fps</li><li>● Supports image cropping and scaling from 1/16x to 16x</li><li>● Supports privacy masking for up to 8 independent regions</li><li>● Supports OSD and BMP graphic overlay</li><li>● Supports image rotation and flipping (mirroring)</li></ul>

## Peripherals

<b>Video Interface</b>	<ul style="list-style-type: none"><li>● Supports 1 × 4 or 2 × 2 lane MIPI interface and parallel interface input</li><li>● Supports 10/12 Bit Bayer format</li></ul>
<b>Audio Interface</b>	<ul style="list-style-type: none"><li>● Built-in audio codec. Supports up to 16-bit, 48kHz sampling.</li><li>● Supports I2S interface for external audio codec</li></ul>
<b>Network Interface</b>	<ul style="list-style-type: none"><li>● Built-in 10/100M Ethernet PHY</li></ul>
<b>Packaging</b>	<ul style="list-style-type: none"><li>● 9 mm × 9 mm and QFN92</li></ul>

