# F136

# Cost-Effective Multimedia Platform

## Overview

The F136 family is an advanced application processor designed specifically for the video decoding market. It has a rich set of peripheral interfaces and many new features to provide a low-cost overall solution design.



## Highlights

- Integrated 64-bit RISC CPU processor provides powerful computing performance.
- Embedded 64 MB DDR2, up to 528MHz.
- Supports H.265/H.264 1080p@60fps video decoding, and MJPEG/JPEG 1080p@60fps video encoding.
- Rich peripheral interfaces, such as USB, SDIO, GMAC, UART, SPI, PWM, GPADC, TPADC, IR, and so on.
- Rich video interfaces, RGB888, Dual-LVDS, MIPI-DSI for Display, DVP-CSI for video input.

## Features

| | |
|---|---|
| CPU | • XuanTie C906 RISC-V CPU<br>• 64 KB I-cache + 64 KB D-cache |
| Memory | • SiP 64 MB DDR2<br>• SD3.0/eMMC 4.41 |
| Video Engine | • Video decoding<br>-H.265 up to 1080p@60fps<br>-H.264 up to 1080p@60fps<br>-H.263, MPEG-1/2/4, JPEG, VC-1, up to 1080p@60fps<br>• Image decoding<br>-JPEG up to 1080p@60fps<br>• Video encoding<br>- JPEG/MJPEG up to 1080p@60fps<br>- Supports input picture scaler up/down |
| Display Engine | • Allwinner Awonder1.1 Lite post processing for an excellent display experience<br>• Supports de-interlace (DI) up to 1920 x 1080@60fps<br>• Supports G2D hardware accelerator including rotate and mixer functions |
| Video IN | • 8-bit parallel CSI interface |

# Features

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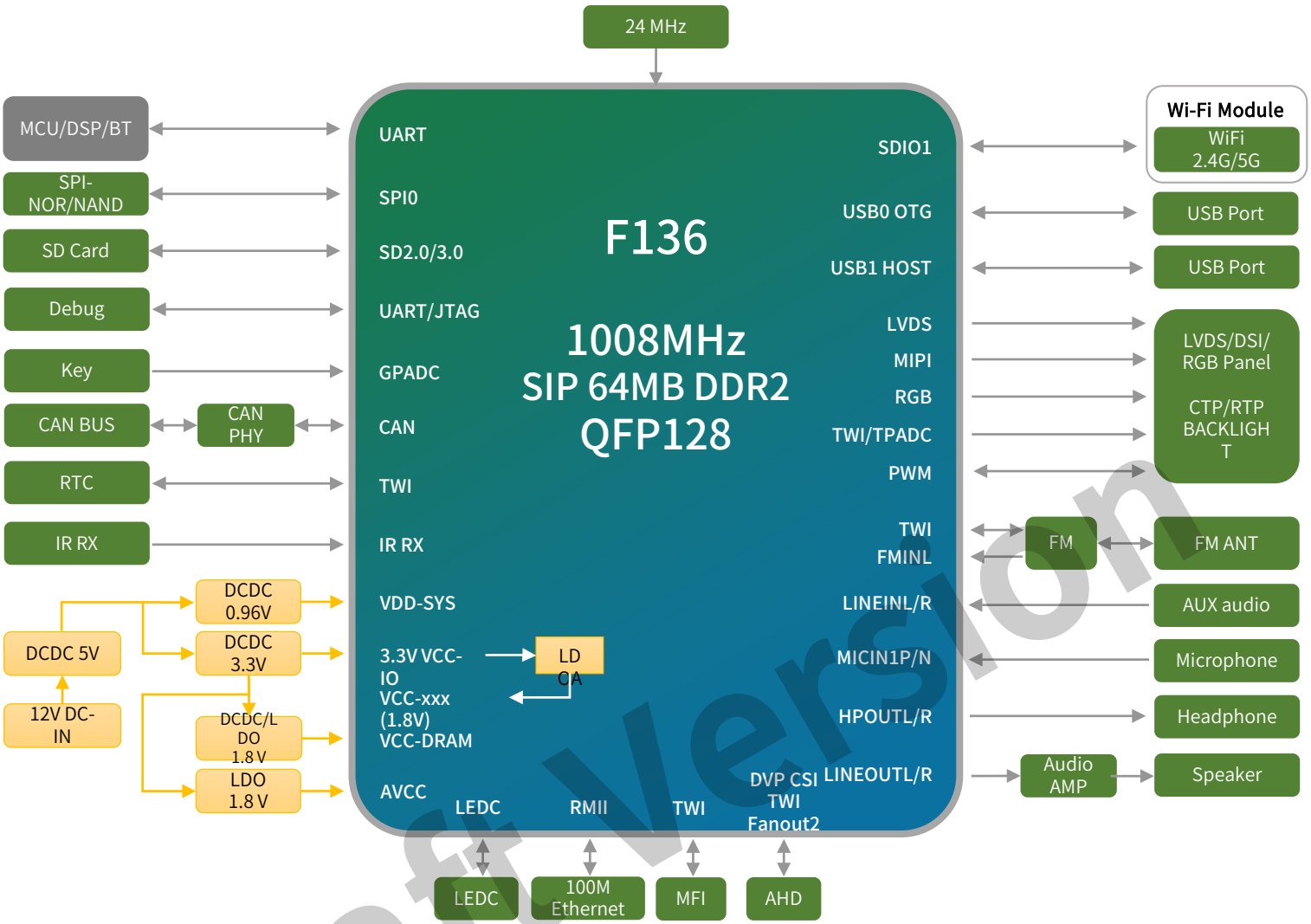
|---|---|
| Video OUT | • 1 x RGB888 output interface up to 1920 x 1080@60fps<br>• Dual link LVDS interface up to 1920 x 1080@60fps<br>• 4-lane MIPI DSI interface up to 1920 x 1200@60fps |
| Audio | • 2 DACs and 2 ADCs<br>• Analog audio interfaces: MICIN1P/N, FMINL/R, LINEINL/R, LINEOUTLP/N, LINEOUTRP/N, HPOUTL/R<br>• Digital audio interfaces: I2S/PCM, DMIC, OWA IN/OUT |
| Security | • AES, DES, 3DES encryption and decryption algorithms<br>• RSA signature verification algorithm<br>• MD5/SHA and HMAC tamper proofing<br>• Hardware random number generator<br>• Integrated 2 Kbits eFuse storage space |
| Connectivity | • 1 x USB2.0 DRD, 1 x USB2.0 Host<br>• 1 x SDIO 3.0, 2 x SPI, 6 x UART , 4 x TWI , 2 x CAN, 1 x IR TX&RX, 1 x LEDC<br>• 8-ch PWM, 2-ch GPADC, 4-ch TPADC (TPADC pad can be used by GPIO)<br>• 2 x 10/100/1000M GMAC with RMII and RGMII interfaces |
| Package | • QFP128, 14 mm x 14 mm |

# Block Diagram

# Application Diagram






**ABOUT ALLWINNER**

Allwinner Technology, founded in 2007, is a outstanding designer dedicated to intelligent application SoC, high performance analog component and wireless connectivity IC. It is headquartered in Zhuhai China, with other R&D centers and offices in Shenzhen, HongKong, Xi'an, Beijing and Shanghai. Listed on the GEM of the Shenzhen Stock Exchange in 2015, with the stock code 300458.

Motivated by customer-oriented strategy, Allwinner aligns remarkable R&D teams with long-term core-technology investment in UHD video processing, high-performance multi-core CPU/GPU integration with AI and advanced manufacturing process in terms of high integration , ultra-low power consumption and full-stack integration platform, providing competitive turnkey solutions with considerate services. The products powered by Allwinner spread across from smart hardware, smart home, consumer electronics, HD media, smart video, connected car, industry control, wireless communication to analog products.

**CONTACT US**

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