



FHD Mobile Camera SoC

Feature List

Processor Core

- Single-core Cortex-A7@1.0GHz
- Neon acceleration, integrated FPU

Video Encoding/Decoding Performance

- H.264 BP/MP/HP encoding
- MJPEG/JPEG baseline encoding
- Real-time multi-stream H.264 encoding capability:
 - 1080p@30fps+1080p@30fps encoding
- H.264 decoding
 - 1080p@30fps decoding
- Supports JPEG encoding/decoding
- Rate control modes: CBR and VBR
- Encoding of eight ROIs
- On-screen display(OSD) overlay pre-processing for 64 regions

Video Input

- Supports two video input channels
- The first channel supports 8/10/12-bit DC timing input, and supports BT601/BT656/BT1120 input interfaces
- The second channel supports 4lane MIPI CSI2 interface
- The maximum input width is 1920

Video Output

- Supports 3 layers (2 video layers, 1 UI layers) overlay, video and UI layer up to 1080p
- One MIPI DSI up to 1080p@60fps
- One RGB888/666/565 display output
- One BT656/BT1120 video output

Graphics Processing

- Supports Lens distortion correction
- Supports 90°, 180°, 270° picture rotation
- 1/256 to 32x picture scaling

Audio Encoding/Decoding

- Voice encoding/decoding complying with multiple protocols by using software
- Compliance with the G.711, G.726 and ADPCM protocols
- Audio 3A functions (AEC, ANR, and ALC)

Audio Interface

- Integrated audio CODEC supporting 20-bit inputs and outputs
- Mono MIC/Linein input and mono Lineout output
- I2S interface for connecting to an external audio CODEC

ISP

- Adjustable 3A functions (AE, AWB, and AF)
- Supports 2F WDR and Local Tone mapping, supporting highlight suppression and backlight compensation
- Supports bad pixel correction, Lens shading correction
- Supports multi-level noise reduction (spatial-domain noise reduction and time-domain multi-frame noise reduction), remove motion smear and color noise
- Supports color adjustment, color enhancement
- Supports image dynamic contrast enhance and sharpness enhance
- Supports 4 channels of scaling output from 1/256x to 1x
- Supports image mirroring and flipping
- Provides ISP tuning tools for the PC

Peripheral Interfaces

- External reset input
- Internal RTC
- Integrated multichannel ADC
- UART, CIR, TWI, PWM, GPIO interfaces
- Two SD3.0/SDIO3.0 interfaces, supporting SDXC
- One USB2.0 OTG

SDK

- Linux-4.9 SDK

Physical Specifications

- Power consumption
 - Typical 1080p30 encoding, power consumption: TBD
- Operating voltage
 - 0.9V core voltage
- Package
 - 12mm x 12mm, 273pin, 0.65mm ball pitch, TFBGA RoHS

External Memory Interfaces

- SDRAM interface
 - 16-bit DDR3/DDR3L interface, maximum frequency of 800 MHz
 - Maximum memory up to 4Gbit for single 16-bit DDR
- SPI NOR flash interface
 - 1-/2-/4-wire mode
 - Maximum capacity of 32 MB
- SPI NAND flash interface, maximum capacity of 512 MB

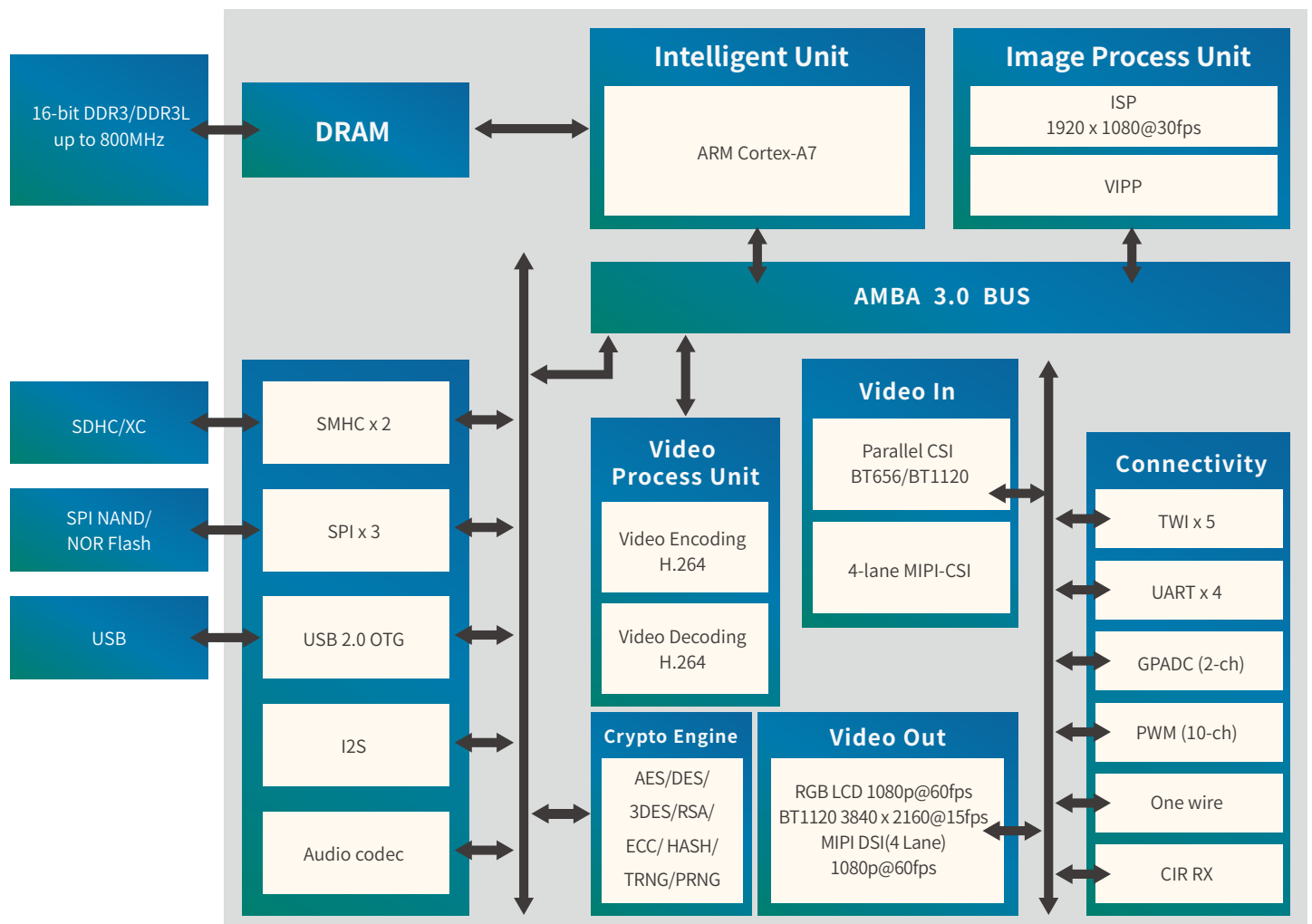
Boot

- Booting from SPI NOR flash, SPI NAND flash
- Supports writing firmware by SD Card, USB device

Security Engine

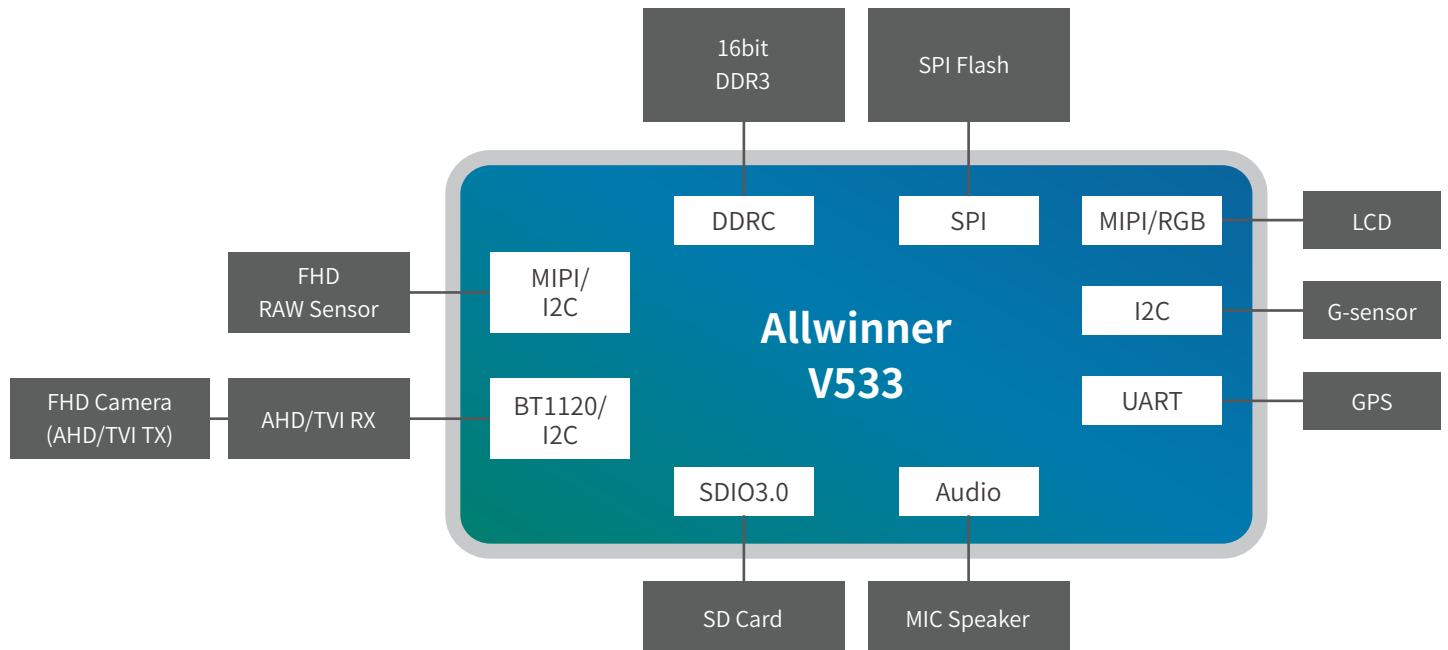
- AES, DES, and 3DES encryption and decryption algorithms
- RSA1024/2048/4096 signature verification algorithm
- Hash-SHA1/256 and HMAC_SHA1/256 tamper proofing
- Integrated 1Kbit OTP storage space and hardware random number generator

Block Diagram



Application Diagram

- V533 Application Solution (FHD + FHD)



ABOUT ALLWINNER

Allwinner Technology is a leading fabless design company dedicated to smart application processor SoCs and smart analog ICs. Its product line includes multi-core application processors for smart devices and smart power management ICs used by brands worldwide.

With its focus on cutting edge UHD video processing, high performance multi-core CPU/GPU integration, and ultra-low power consumption, Allwinner Technology is a mainstream solution provider for the global tablet, internet TV, smart home device, automotive in-dash device, smart power management, and mobile connected device markets. Allwinner Technology is headquartered in Zhuhai, China.

CONTACT US

For more product info, please contact service@allwinnertech.com, or scan the QR code to follow us on Wechat.

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