

AX620A is a professional smart IP camera SoC with strong AI capabilities. It integrates four ARM Cortex-A7 processors, a dual core high efficiency NPU that offers 14.4TOPS@INT4 or 3.6TOPS@INT8, an AI enabled ISP pipeline that delivers up to 4K@30 fps, and a VPU with 4K@30 fps H.264/H.265 encoding capabilities. All these functionalities are provided in a low power chip design. With a high-performance AI-ISP and a power-efficient NPU, AX620A enables a plurality of AI innovations and brings an extraordinary AI enabled video and image processing experience to worldwide customers.



AX620A

Features

CPU

- Quad Cortex A7@1.0GHz
- 32KB I-Cache
- 32KB D-Cache
- 256KB L2 Cache
- Neon acceleration
- Integrated FPU

NPU

- Neutron™ V2.0
- Up to 14.4 TOPs @ INT4 or 3.6TOPs@INT8
- Supports mixed-precision operations

ISP

- Proton™ v2.0
- Up to 4K@30fps
- 3A (AF, AWB, AE)
- AI-HDR
- AI-3DNR, 2DNR
- FPN removal and DPC
- BPC
- Lens Shading
- Color Enhancement
- Dehaze
- Fisheye
- AI-Stitching
- DIS, EIS

Video Encoder

- H.264 HP/MP/BP Level v5.1
- H.265 MP Level v5.0
- I-/P-frames
- Up to 3840×2160@30fps encoding
- Real-time multi-stream H.264/H.265 encoding: 3840×2160@30fps + 1080p@30fps + 720p@30fps
- CBR/VBR/AVBR/CVBR/FIXQP/QP MAP control mode
- Up to 8-ROI encoding
- JPEG encoding: 3840×2160@30fps
- Up to 200Mbps output bit rate

Video Decoder

- H.264 HP/MP/BP: Level 4.2
- Up to 1080p@60fps decoding
- I-/P-/B-frames
- JPEG decoding: 1080p@60fps
- Up to 100Mbps output bit rate

Video and Graphics Processing

- Video and graphics scaling
- Up to 8-region OSD overlay before encoding
- 90°, 180°, and 270° image rotation

Peripherals

Video Interfaces

VI

- 4-channel VI
- 4 + 4 + 2 + 2 Lane MIPI CSI
- Up to 2.5 Gbps

VO

- 2-channel MIPI DSI

Memory Interfaces

SDRAM Interface

- 32bit LPDDR4(x), supporting a max. capacity of 4GB
- Up to 3733 Mbps

SPI Flash Interface

- Supports SPI Nor Flash
- Supports SPI Nand Flash

eMMC v5.1 Interface

- Max. capacity of 2 TB

Ethernet

- One Gigabit Ethernet port
- RGMII, and RMII modes
- TSO network acceleration

USB

- One USB 2.0
- Supports Host or Device

Other Interfaces

- I2S codec interface
- I2C, SPIs, and UART

Security

- Secure boot
- Hardware-based encryption and decryption algorithms (including AES, DES, and 3DES)
- Hardware-based HASH algorithms (SHA-1, SHA-224, and SHA-256)

Startup

- Boot from eMMC, SPI Nor Flash, SPI Nand Flash

Physical Spec.

Operating Voltage

- 0.8V core voltage
- 1.1V/0.6V LPDDR4(x) interface voltage
- 1.8V/3.3V I/O voltage

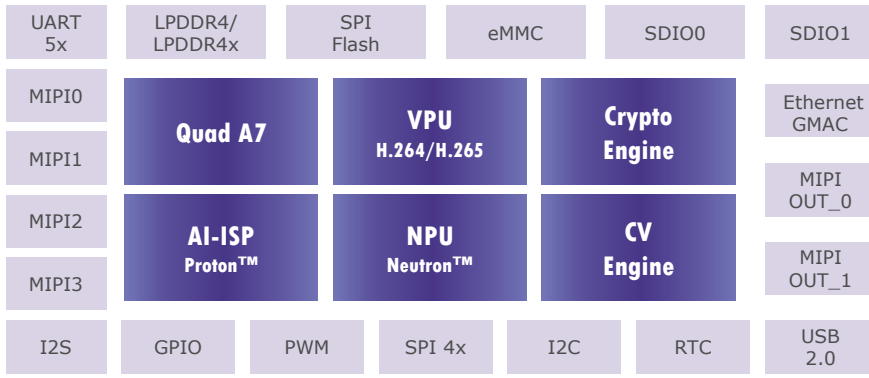
Package

- 14 mm × 14 mm FC-CSP

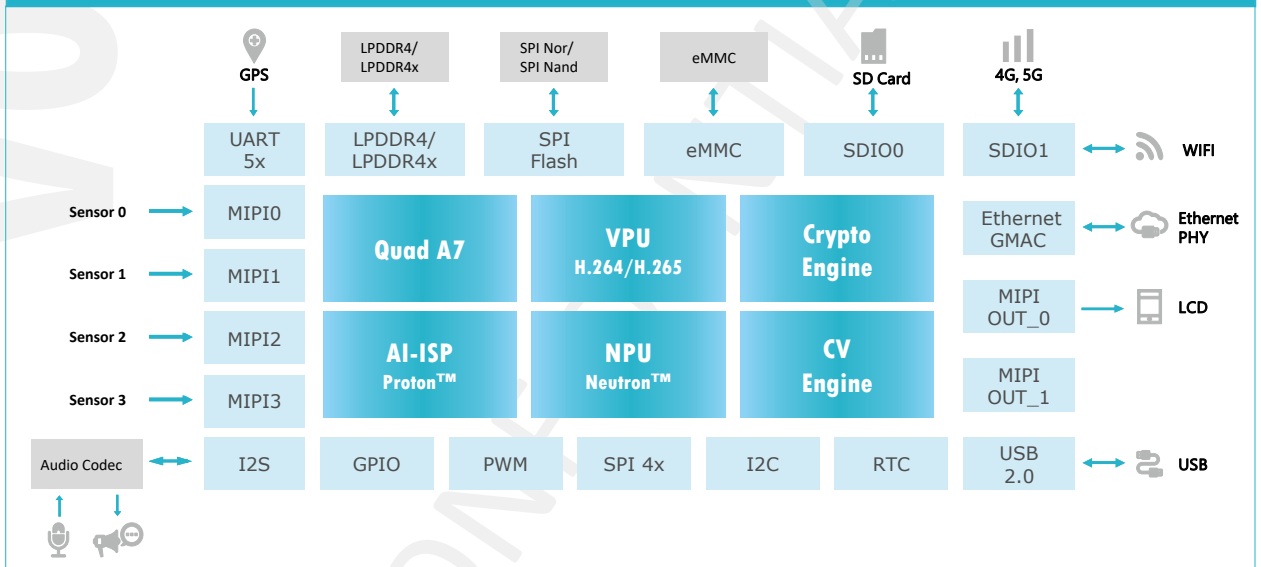
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AX620A Brief

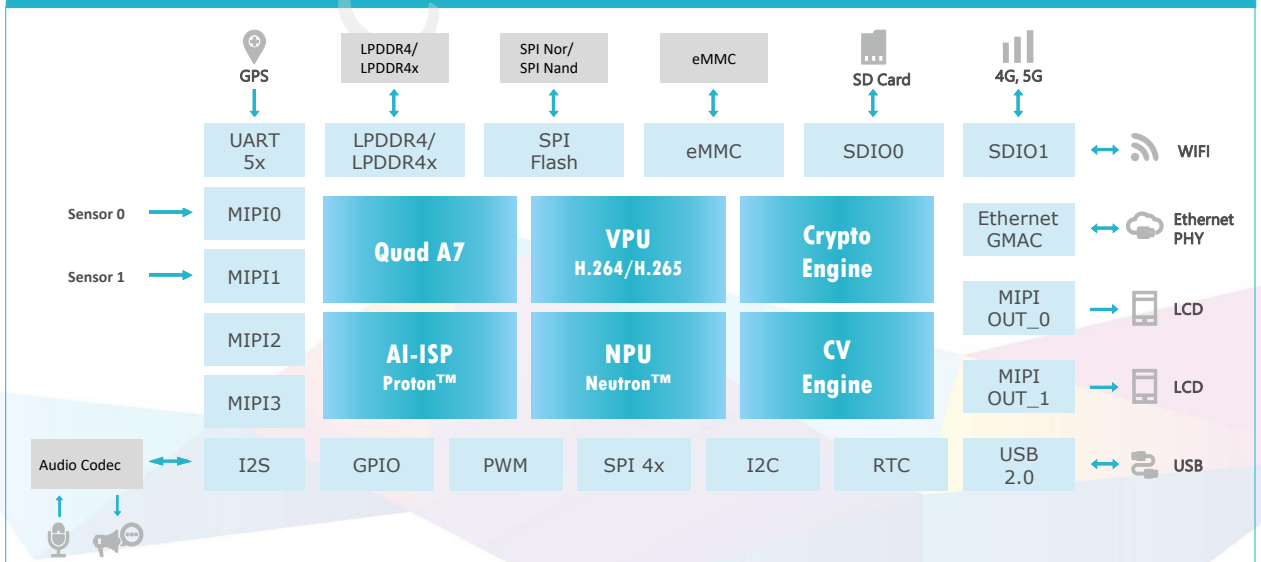
AX620A Block Diagram



AI IP Camera / Action Camera Solution



Face Recognition Terminal Solution



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