

# AX615

AX615 is an IPC SoC developed by Axera for module, channel, and consumer markets. Integrated with the cutting-edge AXProton 5.0 AI-ISP, this chip supports night vision of 2 M @ 30 fps. Its high-performance AXNeutron 5.0 NPU optimized for diverse scenarios makes AX615 to take a leading role in high-quality image processing and intelligent analysis. AX615 provides reliable and easy-to-use SDK, empowering you to mass produce effectively.



## Product Description

### CPU

- Dual-core Cortex A7
- 32KB I-Cache
- 32 KB D-Cache
- Supports NEON acceleration
- Integrates FPU

### NPU

- 1 TOPs
- Supports mixed precision
- Supports various mainstream deep learning frameworks

### ISP

- Supports AI ISP up to 2 M @ 30 fps
- Supports 3A (AF, AWB, and AE)
- Supports image information statistics
- Supports AI-3DNR and 3DNR
- Supports AI-RLTM
- Supports 2-frame HDR
- Supports fixed pattern noise reduction
- Supports automatic detection and elimination of dynamic bad pixels
- Supports vignetting compensation
- Supports image enhancement
- Supports defogging function

### Video Encoding

- H.264 HP/MP/BP Level 5.1 encoding
- H.265 MP Level 5.0 encoding
- Supports I/P frame for H.264/H.265 format
- Real-time multi-stream H.264/H.265 encoding capability: 4M + D1
- Supports bitrate control modes of CBR, VBR, AVBR, CVBR, FIXQP, and QPMAP
- Supports encoding up to 8 ROIs
- JPEG capture performance: 4M

### Video and Image Processing

- Supports customizing the position and number of OSD overlays
- Supports mosaic
- Supports bitmap
- Supports video and image cropping

## Hardware Interfaces

### Video Interface

#### Input

- Supports 1 × 4 lane or 2 × 2 lane MIPI
- Supports up to 2.5 Gbps per lane

#### Output

- LCD 6/8 bit RGB or BT656
- Supports up to VGA or 5M BT output

### Storage Interface

#### DDR interface

- SiP 512Mb
- Supports up to 1333Mbps

#### SPI Flash

- Supports SPI Nor Flash
- Supports SPI Nand Flash

#### eMMC Interface

- Supports eMMC v4.5

### Peripheral Interface

#### Ethernet

- Supports 1-ch Ethernet port
- Supports TSO, UFO, and COE
- SiP RMII ePHY

#### USB

- Supports 1-ch USB 2.0
- Supports Host/Device mode

#### Other Interfaces

- SiP audio codec that supports I2S expansion
- Supports SDIO × 2, I2C × 3, SPI × 3, Uart × 3, PWM interfaces



WeChat  
Subscription  
Account



Official Website

## Security

### Built-in security module

- Supports secure boot
- Supports memory security isolation
- Hardware implementation of AES/DES/3DES encryption algorithms
- Hardware implementation of SHA-1, SHA-224, and SHA-256

## Start-up

- Supports booting from eMMC
- Supports booting from SPI Nor Flash
- Supports booting from SPI Nand Flash

## Physical Specs

### Operating Voltage

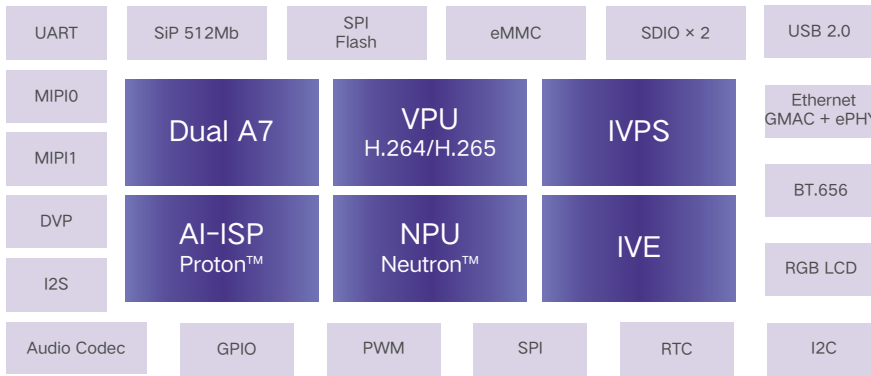
- Core voltage: 0.8 V
- DDR voltage: 1.5 V
- IO voltage: 1.8 V, 3.3 V

### Packaging

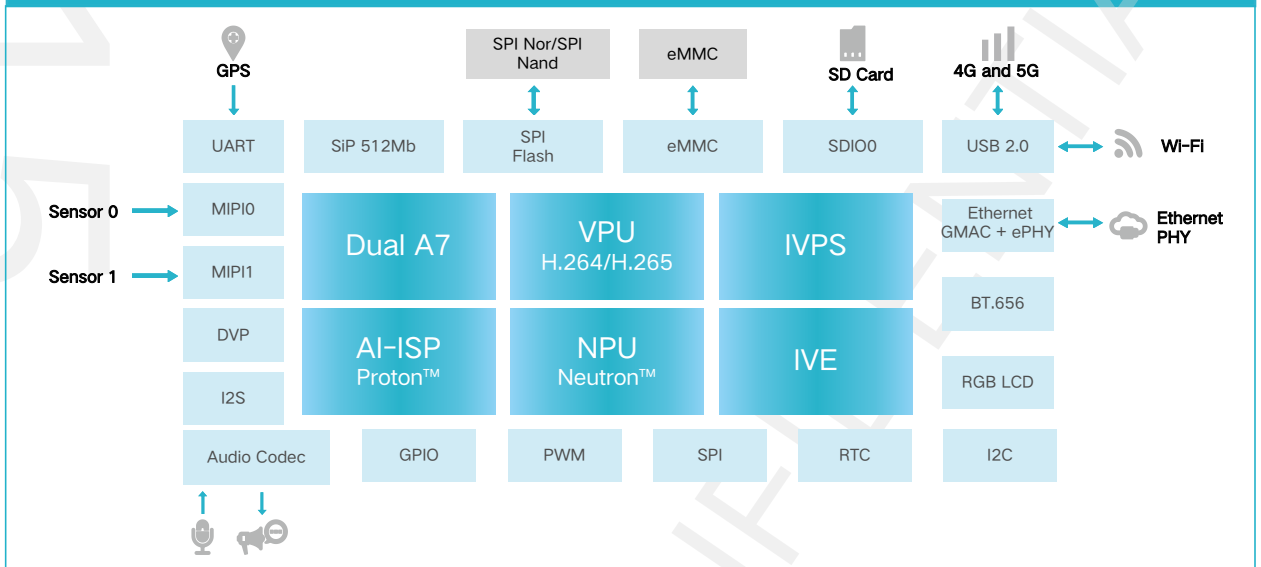
- QFN 10 × 10 mm

• An IMPORTANT NOTICE at the end of this data sheet addresses availability, warranty, changes, use in safety-critical applications, intellectual property matters and other important disclaimers. PRODUCTION DATA.

# AX615 Product Diagram



## Camera Solution for Industrial Applications



• An IMPORTANT NOTICE at the end of this data sheet addresses availability, warranty, changes, use in safety-critical applications, intellectual property matters and other important disclaimers. PRODUCTION DATA.