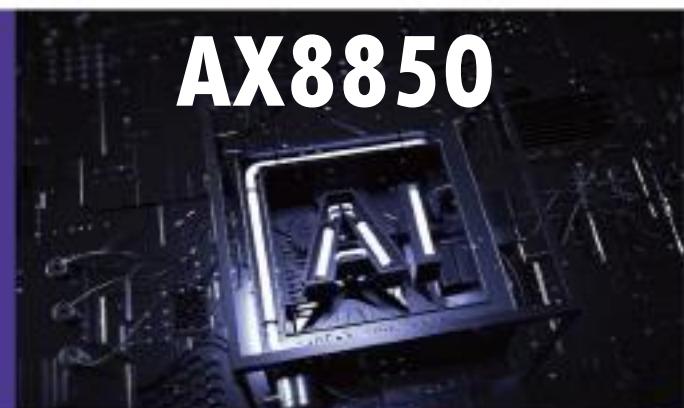


AX8850 is a professional smart SoC with strong AI capabilities. It integrates eight ARM Cortex A55 processors, a high efficiency NPU that offers 24.0TOPS@INT8, a VPU with H.264/H.265 encoding capabilities. All these functionalities are provided in a lowpower chip design. With a power-efficient NPU, AX8850 enables a plurality of AI innovations and brings an extraordinary AI enabled video and image processing experience to worldwide customers.

# AX8850



## Features

### CPU:

- OctoCortex A55@1.7GHz
- 32KB I-Cache
- 32KB D-Cache
- Neon acceleration
- Integrated FPU

### NPU:

- 24TOPs@INT8
- Support MAU
- Support IVE

### DSP:

- Dual VDSP
- 32KB I-Cache
- 16KB D-Cache

### Video Encoder:

- H.264 HP/MP/BP Level v5.1
- H.265 MP Level v5.0
- I-/P-frames
- Up to 8K@30fps encoding
- Real-time multi-stream

### H.264/H.265 encoding:

- 7680\*4320@30fps+1080p@30fps
- CBR/VBR/AVBR/CVBR/FI/XQP/QPMAP control mode
- Up to 8-ROI encoding
- JPEG encoding: 3840\*2160@200fps
- Up to 200Mbps output bit rate

### Video Decoder:

- H.264 HP/MP/BP Level 5.2
- H.265 HP/MP/BP Level 5.1
- Up to 8K@30fps decoding
- Up to 32x1080p@30fps decoding
- JPEG decoding: 3840\*2160@120fps
- Up to 300Mbps output bit rate

### Video and Graphics Processing:

- Video and graphics scaling
- Up to 12-region OSD overlay before encoding
- 90°, 180°, 270° image rotation

## Peripherals

### Video Out Interfaces:

- Two HDMI 2.0, support output up to 3840x2160@60fps
- BT.1120 / BT.656

### Other Interfaces:

- I2S, I2C, SPI, Uart

### Memory Interfaces:

#### SDRAM

- 64bit LPDDR4(x)
- supporting a maximum capacity of 32GB
- Up to 4266 Mbps rate

#### SPI Flash Interface

- Support SPI Nor Flash
- Support SPI Nand Flash

#### eMMC Interface

- Support eMMC v5.1
- Maximum capacity of 2TB

### Ethernet:

- Two Gigabit Ethernet ports
- RGMII, and RMII modes
- TSO network acceleration

### USB

- One USB 3.0, two USB2.0
- Support Host or Device

### PCIe and SATA

- 2x2 Lane PCIe 2.0 RC/EP mode
- Four SATA 3.0, PM/eSATA



## Security

### 内置安全模块:

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

- 16mm x16mm FC-CSP



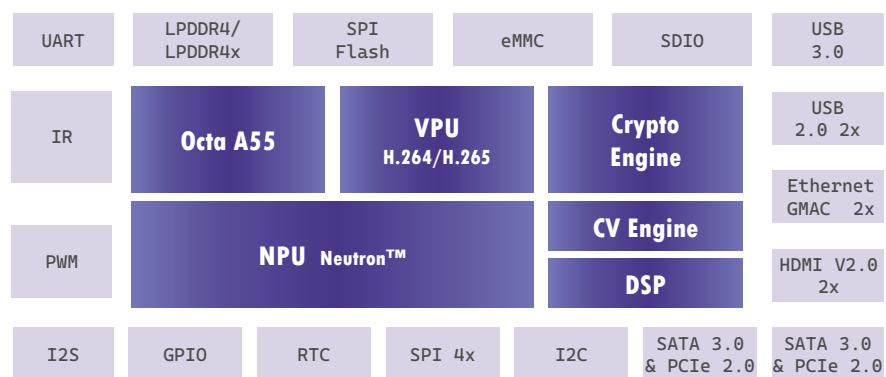
WeChat



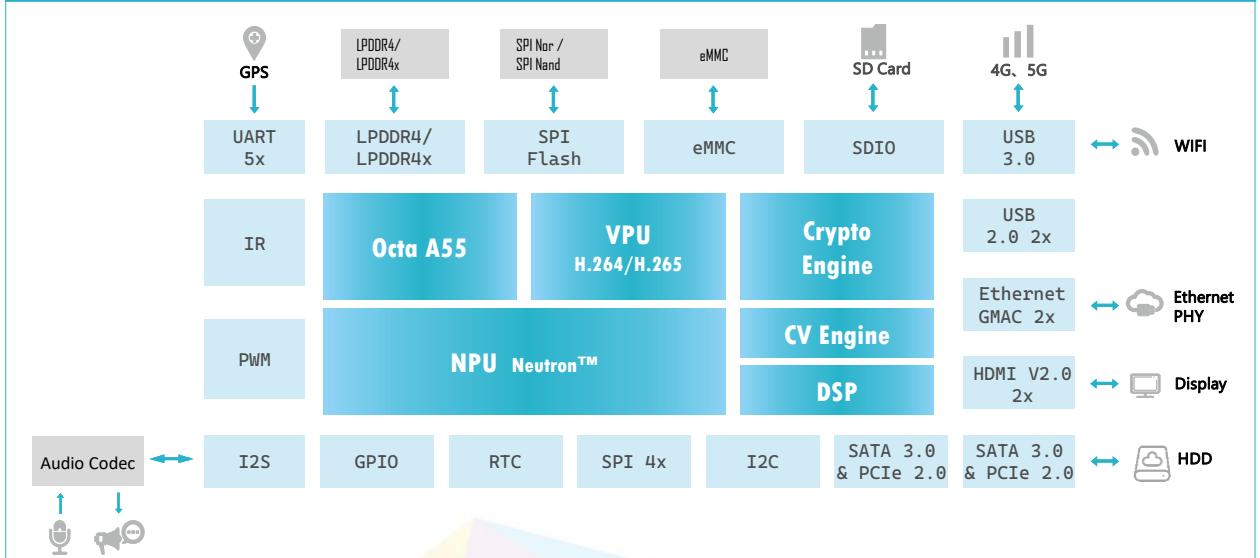
Axera Website

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## AX8850 Block Diagram



## Edge Computing Product Solution



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