

AX8860 is a high-performance AI SoC for edge and on-device AI, designed for high-concurrency video analytics, local large-model inference, and multimodal understanding. It integrates a 256 TOPS NPU, 16-core Arm Cortex-A55 CPU, 136 GB/s memory bandwidth, 8K hardware video codecs, a hardware CV engine, and a hardware security engine. The SoC supports an end-to-end pipeline from multimodal inputs (video, images, audio, text, and sensor data) through hardware decoding and preprocessing to data structuring and LLM inference, without an external host processor. Applications range from edge and on-device AI to all-in-one AI agent systems. It provides cost-effective AI computing while meeting AI application and security compliance requirements in low-latency, high-reliability, intranet-isolated, offline, or unstable-network environments.

AX8860



Overview

CPU

- 16-core Cortex A55 @ 1.65 GHz
- L1: 32KB I/D-cache per core
- L2: 64KB cache per core
- L3: 1024 KB
- Supports GIC-600, NEON, FPU, and TrustZone

NPU

- 256 TOPS
- Native support for mixed precision: INT4/8/16, FP4/8/16, BF16
- Supports CNN, Transformer, LLM/VLM/VLA/Omni

Video Decoding

- H.264 & H.265: 64 × 1080P @ 30 fps
- Resolution up to 8K (7680 × 4320)

Video Encoding

- H.264 & H.265: 16 × 1080P @ 30 fps
- Resolution up to 8K (7680 × 4320)

Image Codec

- JPEG: 1080P @ 720 fps codec
- Resolution up to 32768 × 32768

Video Preprocessing

- Supports image CSC, Resize, and up to 3 streams
- Supports crop, rotate, flip, mirror, and contrast/hue/saturation adjustment



Hardware Specs

DDR

- LPDDR5/LP5X, 128 bits
- Supports up to 8533 Mbps
- Max. capacity of 64 GB

SPI Flash

- Supports SPI Nor Flash
- Supports SPI Nand Flash

eMMC

- Supports eMMC 5.1
- Up to 2 TB

PCIe

- 2 × PCIe 5.0 × 4. Supports RC/EP mode.
- 1 × PCIe 3.0 1 lane (USB 3.0 / 10 Gigabit Ethernet Combo)

Ethernet

- 1 × 10 Gigabit Ethernet port, supporting USXGMII/SGMII (Combo USB 3.0 & PCIe 3.0)
- 1 × Gigabit Ethernet port. Supports RGMII/GMII.

USB

- Supports 1 × USB 2.0. Supports Host/Device mode.
- Supports 1 × USB 3.0 (Combo 10 Gigabit Ethernet port & PCIe 3.0)

Other Modules

I2S, I2C, SPI, Uart...



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Security

Built-in Security Module

- Supports secure boot
- Hardware implementation of AES, DES, and 3DES
- Hardware implementation of SM2/3/4, SHA-1, SHA-224/SHA-256



Start-up

Boot Mode

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



Interfaces

Operating Voltage

- Core voltage: 0.75 V
- LPDDR5(x) voltage: 1.05 V/0.5 V
- IO voltage: 1.8V, 3.3V

Packaging

25 mm × 25 mm FC-BGA



Official
Website

Application Scenario

Smart Cities and Transportation: Edge boxes and all-in-one edge systems for real-time multi-stream video analytics, scene semantic understanding, analysis, and decision-making.

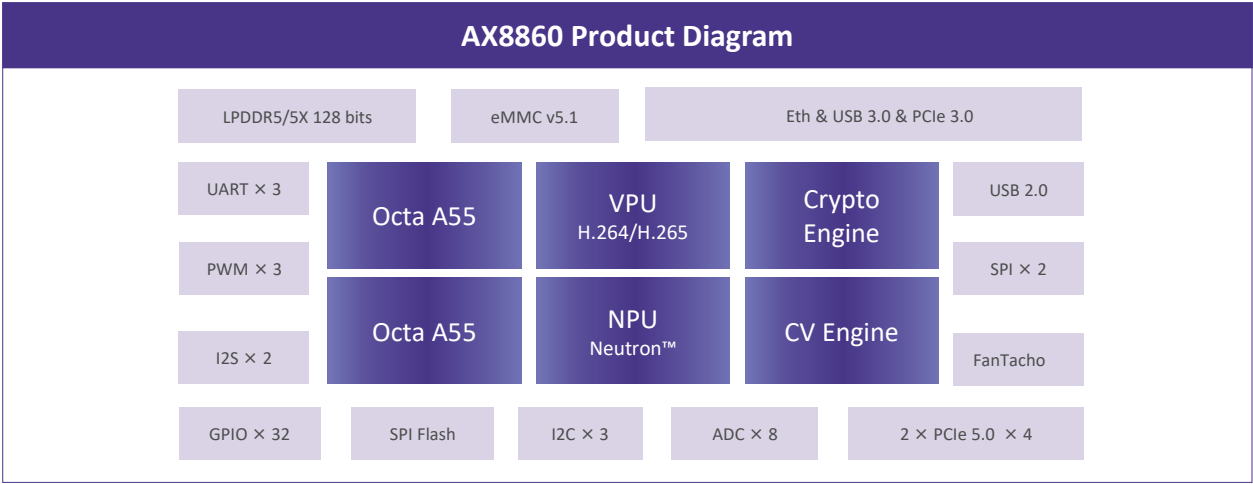
Industrial Intelligent Manufacturing and Quality Inspection: Computing terminals for industrial control, production, and maintenance, supporting high-speed visual inspection on production lines, product sorting, and equipment maintenance analytics.

Intelligent Vehicles: Intelligent cockpit boxes.

Other Smart Applications: AI agent hosts for lightweight LLM- and VLM-based applications across industrial and consumer markets.

Products

Agent All-in-one Machines
Edge All-in-one Machine/Box



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