

AX8860P is a high-performance AI SoC for edge and on-device AI, targeting high-concurrency video analytics, local large-model inference, and multimodal understanding. It integrates a 256 TOPS NPU, 16-core Arm Cortex-A55 CPU, 273 GB/s memory bandwidth, 8K hardware video codecs, a hardware CV engine, and a hardware security engine. It 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. Its 2-chip or 4-chip C2C interconnects enable scalable solutions, from AI accelerator cards to multi-card workstations and all-in-one AI agent systems. AX8860P delivers cost-effective AI computing for edge and on-device applications requiring low latency, high reliability, and compliance with AI application and security requirements, including intranet-isolated, offline, and unstable-network environments.

AX8860P



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 GIC600, 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, 256 bits
- Supports up to 8533 Mbps
- Max. capacity of 128 GB

SPI Flash

- Supports SPI Nor Flash
- Supports SPI Nand Flash

eMMC

- Supports eMMC 5.1
- Up to 2 TB

PCIe

- 3 × 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: 1.8 V, 3.3 V

Packaging

35 mm × 35 mm FC-BGA

Application Scenario

Smart Cities and Transportation: All-in-one edge systems and edge workstations 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.

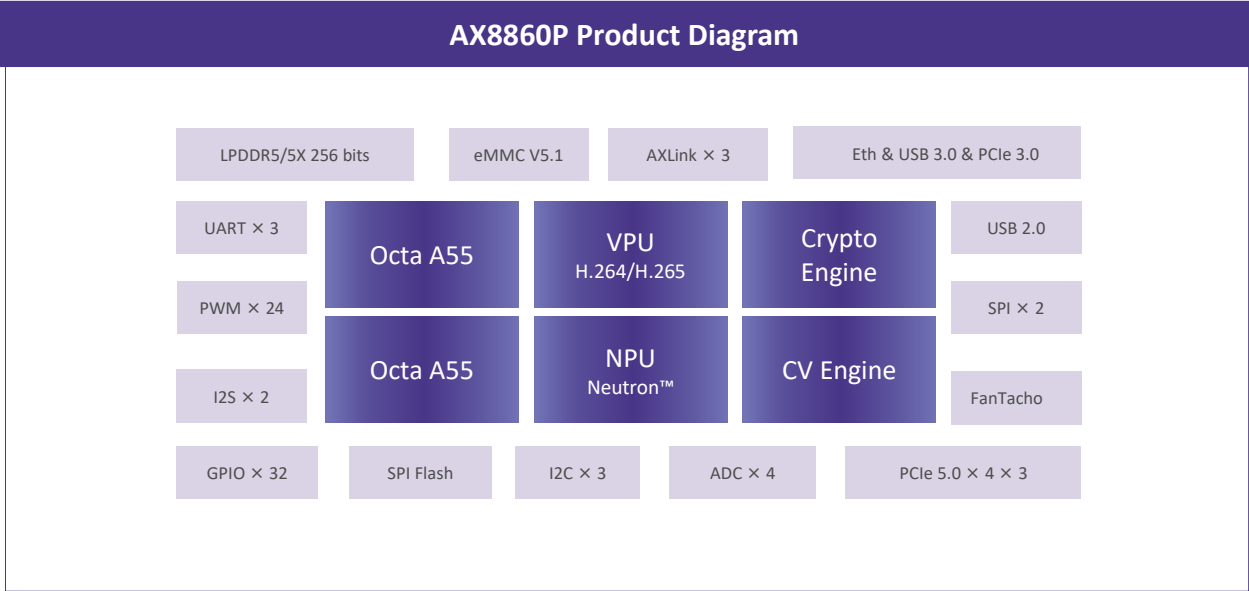
All-in-one LLM Systems: All-in-one systems for domain-specific LLM inference, including intelligent customer service, document understanding, and centralized video analytics.

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
AI Accelerator Card
Edge Workstation



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