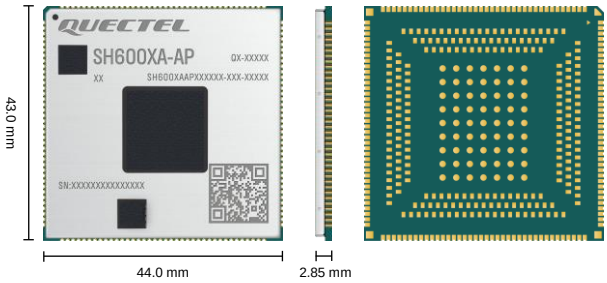
Quectel SH600XA-AP

Smart Computing Module



SH600XA-AP is Quectel's new-generation smart computing module based on a Linux/ Ubuntu* system. It integrates the AX8850 chip from Axera, with an NPU delivering up to 24 TOPS of computing power. The module supports complex models such as Transformer, ViT, and DETR, while maintaining excellent energy efficiency. It fully meets the requirements for AI functionalities in applications.

SH600XA-AP integrates a rich set of interfaces, including 2 × HDMI, 1 × USB 3.0, 2 × USB 2.0, 7 × UART, 1 × SD card, 1 × SDIO, 2 × Ethernet, 9 × I2C, 4 × I2S, 2 × PCIe, SPI, and RTC*. The module supports 8K @ 30 fps video encoding and decoding. Additionally, it can be paired with Quectel's external modules, significantly expanding its application in the computing field. It is also suitable for extension to various use cases such as smart commercial displays, vehicle terminals, industrial computers, and smart home systems.

Key Features

- 24 TOPS @ INT8, supporting mixed precision
- Octa-core Cortex-A55 CPU @ 1.5 GHz
- 8K @ 30 fps video encoder and decoder
- Supports up to 32 GB of LPDDR4X memory
- Supports expansion for 4 × SATA 3.0*
- Supports 2 × Ethernet interfaces, each configurable as RGMII or RMII
- USB 3.0/ USB 2.0/ SD 3.0
- PCIe Gen 2 × 4 PHY (5 Gbps/lane)

24 TOPS Computing Power

Excellent Power Efficiency

Octa-core Cortex-A55 CPU

Rich Peripheral Interfaces

Multimedia Processing Engine

LCC + LGA Package

Version: 1.0 | Status: Released

Quectel SH600XA-AP

Computing Module	SH600XA-AP
Platform	AX8850
Dimensions (mm)	43.0 × 44.0 × 2.85
Package	LCC + LGA
Weight (g)	Approx. 11.6
OS	Linux kernel 5.15/ Ubuntu 22.04*
CPU	Octa-core ARM Cortex-A55 @ 1.5 GHz
NPU	24 TOPS @ INT8, supporting mixed precision
DSP	Dual core VDSP @ 800 MHz
Video	**Encoder:** H.264/ H.265, with up to 7680 × 4320 @ 30 fps JPEG capture performance, with up to 3840 × 2160 @ 200 fps **Decoder:** H.264/ H.265, with up to 7680 × 4320 @ 30 fps JPEG decode performance, with up to 3840 × 2160 @ 120 fps
Memory	Supports LPDDR4/ LPDDR4X, 4 GB LPDDR4X + 64 GB eMMC (default) 8 GB LPDDR4X + 128 GB eMMC (optional)
Temperature Range	
Operating Temperature	-35 °C to +75 °C
Electrical Features	
Supply Voltage Range	3.55–4.4 V; Typ. 3.8 V
Power Consumption	0.89 A @ running current, 2.41 A @ CPU + NPU full load
Interfaces	
Display	2 × HDMI, supporting 4K @ 60 fps Supports dual independent display*
Camera	Not supported
USB	1 × USB 3.0, supporting DRD 2 × USB 2.0, supporting DRD
UART	× 7 Max.
SD Card	× 1 Max., supporting SD 3.0
SDIO	× 1 Max.
Ethernet	× 2, each configurable as RGMII or RMII
I2C	× 9 Max.
I2S	× 4 Max.
ADC	× 3 Max.
SATA*	× 4 Max. , supporting SATA 3.0
SPI	× 5 Max.
PWM	× 20 Max.
PCIe	× 2 Max.
RTC*	Supported
Button	RESET_N/ BOOT
GPIO	× 114 Max.

NOTE:

1. *: Under development/planning

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