

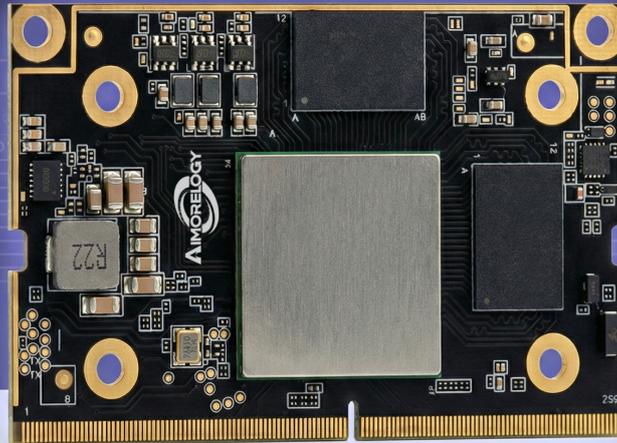


SM9 MODULE PRODUCT BRIEF

BM1688 MODULE

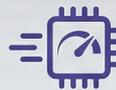
POWERFUL COMPUTE MODULE

Future-Ready Performance & Compatibility



Rich Peripherals

SATA/USB/GbE/HDMI/CAN/
SDIO Support.



Fast Migration

NV Orin Nano/NX Compatible.
Leading Cost-Performance.



Pin-To-Pin Compatibility

Rich Pinlist/Pinmux.
Seamless Integration.



Wide Temp Design

Rugged & Reliable Operation.

SM9 is powered by the SOPHGO high-integration processor BM1688 / CV186AH, featuring low power consumption, high compute performance, rich I/O, and strong compatibility. It supports mixed-precision computation with INT4 / INT8 / FP16 / BF16 / FP32, and enables real-time analytics for 16/8 channels of HD video, providing flexibility for image, speech, and natural language processing workloads. It can be integrated into a wide range of products, including AI compute servers, edge AI compute boxes, industrial PCs, UAVs, and AIoT devices.

AIMORELOGY SM9 MODULE



High Energy Efficiency with Flexibility

- 16/8-channel HD intelligent video analytics
- Supports mixed-precision computing: INT4 / INT8 / FP16 / BF16 / FP32

Powerful Multimedia Capability

- Up to 16-channel HD hardware decoding and 10-channel HD hardware encoding
- Supports multi-channel VI input, audio input, and ISP
- Hardware acceleration for stereo depth, image stitching, and fisheye dewarping

Rich I/O, Wide-Temperature, Low Power for Flexible Deployment

- Supports SATA / USB / GbE / HDMI / CAN / SDIO, etc.
- Lower power consumption with wide-temperature design; commercial/industrial grade options available for improved adaptability

Pin-to-Pin Compatible with NVIDIA Jetson Modules, Best-in-Class Value

- Pin-to-pin compatibility with richer pin list / pinmux options
- Optional 8GB / 16GB LPDDR4 configurations
- Optional 32GB / 64GB eMMC configurations

AIMORELOGY SM9 MODULE

SM9 16-ENC-28

Product Specs	Model: SM9 16-ENC-28
Processor	8-core ARM CA53
Performance	16-channel HD video intelligent analysis
Memory	16GB LPDDR4 64bits 4266Mbps
Storage	64GB eMMC 5.1
Video Decoding	H.264 & H.265: 16x 1080P@30fps; supports 8192x8192 / 8K / 4K / 1080P / 720P / D1 / CIF
Video Encoding	H.264 & H.265: 10x 1080P@30fps; supports 8K / 4K / 1080P / 720P / D1 / CIF
Image Encoding/Decoding	JPEG: 1080P@480fps; max 32768x32768
Audio/Video Input	6x VI; 2x I2S; 2x stereo input & output (optional)
ISP	2x 8MP@30; 2f-HDR; 3DNR / LDC / 3A / Dehaze
CV	IVE/VPSS + DPU (stereo depth) + Stitch (image stitching) + Dewarp (fisheye unwrapping)
PCIe	PCIe Gen3: 1x2 + 1x2; RC & EP
USB	2x USB 3.0; 2x USB 2.0
Network	2x GbE
Display Interface	1x HDMI 2.0
Other Interfaces	2x SATA 3.0; 1x CAN; 1x SD/SDIO; 4x UART; 4x I2C; 6x PWM; 2x SPI; ADC; GPIOs
Power Supply	DC 5V
Operating Temperature	-20°C to +70°C
Connector	260-Pin SO-DIMM
Dimensions	69.6mm × 45mm × 5mm

AIMORELOGY SM9 MODULE

SM9 16-ENC-A8

Product Specs	Model: SM9 16-ENC-A8
Processor	8-core ARM CA53
Performance	16-channel HD video intelligent analysis
Memory	8GB LPDDR4 64bits 4266Mbps
Storage	32GB eMMC 5.1
Video Decoding	H.264 & H.265: 16x 1080P@30fps; supports 8192×8192 / 8K / 4K / 1080P / 720P / D1 / CIF
Video Encoding	H.264 & H.265: 10x 1080P@30fps; supports 8K / 4K / 1080P / 720P / D1 / CIF
Image Encoding/Decoding	JPEG: 1080P@480fps; max 32768×32768
Audio/Video Input	6× VI; 2× I2S; 2× stereo input & output (optional)
ISP	2× 8MP@30; 2f-HDR; 3DNR / LDC / 3A / Dehaze
CV	IVE/VPSS + DPU (stereo depth) + Stitch (image stitching) + Dewarp (fisheye unwrapping)
PCIe	PCIe Gen3: 1×2 + 1×2; RC & EP
USB	2× USB 3.0; 2× USB 2.0
Network	2× GbE
Display Interface	1× HDMI 2.0
Other Interfaces	2× SATA 3.0; 1× CAN; 1× SD/SDIO; 4× UART; 4× I2C; 6× PWM; 2× SPI; ADC; GPIOs
Power Supply	DC 5V
Operating Temperature	Standard: -20°C to +70°C Industrial: -40°C to +85°C High-temp version follows the industrial temperature design baseline
Connector	260-Pin SO-DIMM
Weight	20g
Dimensions	69.6mm × 45mm × 5mm