VT-SBC-SMARC-IMX952

Computer-on-Module



Product Brief

The VT-SBC-SMARC-IMX952 Computer-on-Module (CoM) is built around the NXP i.MX952 family processor to deliver robust performance in a compact SMARC 2.1 form factor. The module integrates a quad/dual-core ARM Cortex-A55 CPU, a high-performance ARM Cortex-M7 real-time MCU, and a lower-power ARM Cortex-M33 safety MCU. It further enhances processing capabilities with a dedicated eIQ® Neutron NPU and a high-performance ARM Mali GPU, enabling efficient handling of complex computational workloads.

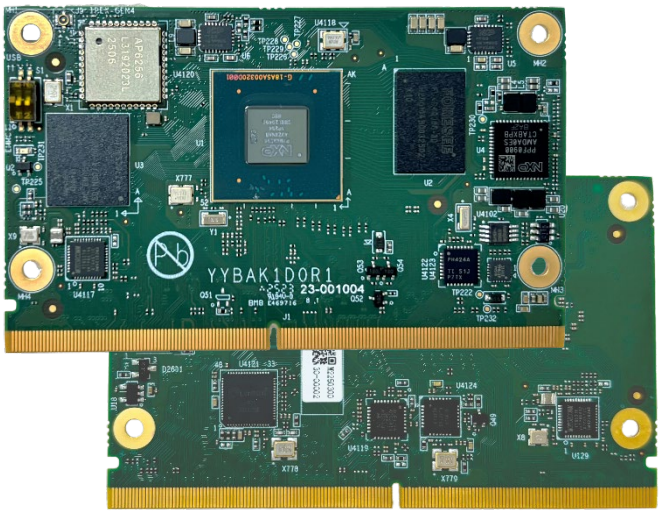
The VT-SBC-SMARC-IMX952 delivers up to 4K 30P H.264 video encoding and 4K 60P H.265/H.264 video decoding capabilities. It supports up to 2 simultaneous displays on dual 4-lane or single 8-lane LVDS delivering up to 1080p@60Hz resolution, and a MIPI DSI interface with 4K@30Hz/ 3840 × 1440@60Hz output resolution. These features make it particularly suitable for industrial vision and display applications.

For connectivity, the module offers two Ethernet ports, including one 1 GbE port and one 2.5 GbE port with TSN support. A Wi-Fi and Bluetooth combo module is available for wireless connectivity. In addition, extensive I/O signals are available for flexible expansion, including USB 2.0, PCIe 3.0, CAN FD, UART, and I^2C.

Target use cases include in-cabin sensing, industrial human-machine interfaces (HMI), edge AI vision, factory automation, and smart gateways, where reliable edge computing, multi-display output and real-time control are required. As the module maintains full compatibility with the i.MX 95 family processors, it significantly reduces customers' time-to-market for new product development.

Preliminary

Exterior and Features



VT-SBC-SMARC-IMX952

- NXP i.MX 952 quad/dual-core CPU + two MCUs
- 4K 30P H.264 encoding, 4K 60P H.265/H.264 decoding
- Up to two simultaneous displays on MIPI DSI and LVDS
- Rich I/O signals for flexible peripheral expansion
- 1/2.5 Gigabit Ethernet, Wi-Fi 5, Bluetooth 5.0
- Dedicated NPU and GPU for AI acceleration
- Android and Yocto Linux systems supported
- SMARC 2.1 form factor for flexible integration

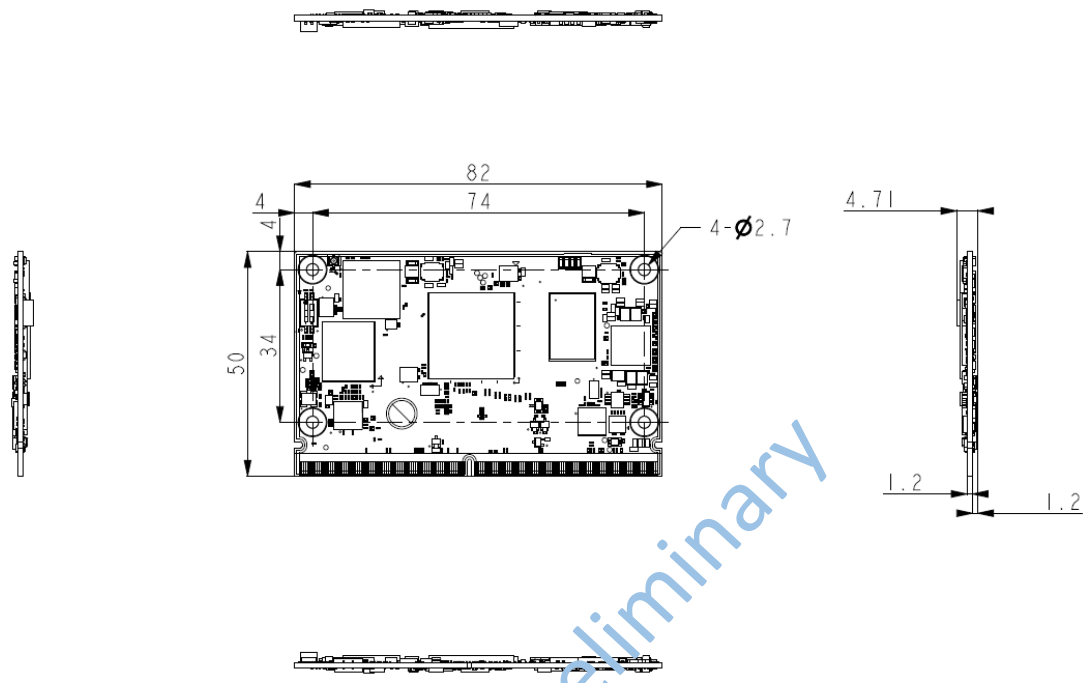
VT-SBC-SMARC-IMX952 Computer-on-Module Datasheet

Specifications			
System	CPU	NXP i.MX952, Quad/Dual-core ARM Cortex-A55 processor, up to 1.7 GHz Single-core ARM Cortex-M7 real-time MCU, 800MHz Single-core ARM Cortex-M33 safety MCU, 333MHz	
	GPU	Arm Mali-G310 GPU, OpenGL ES 3.2, Vulkan 1.2, and OpenCL 3.0 supported	
	NPU	2 TOPS (INT8)	
	Memory	8GB LPDDR4x	
	Storage	64GB eMMC 5.1	
Media	Video processing	4K 30P H.264 video encoding, 4K 60P H.265/H.264 video decoding	
	Camera ISP	500 MPixel/s ISP with RGB-IR for multi-camera vision	
Power	Input	5V 2.4A DC	
	Consumption	Max.: 10W (full load)	
Software	Operating system	Android, Yocto Linux, other Linux distributions (support upon request)	
	Device management	BlueSphere MDM (Optional for Android version)	
Mechanical	Dimensions	82mm × 50mm (SMARC 2.1 form factor)	
Environmental Condition	Temperature	Operating: 0℃ ~ +70℃ (Optional: -40℃ ~ +85℃)	Storage: -40℃ ~ +85℃
	Humidity	5%~95% RH (Non-condensing)	

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I/O		
Display (Support up to 2 displays in duplicate mode)	2 × 4-lane LVDS / 1 × 8-lane LVDS, up to 1920 × 1080 @60Hz	
	1 × 4-lane MIPI DSI / HDMI, up to 4K @30Hz or 3840 × 1440 @60Hz	
Camera	1 × 4-Lane / 2 × 2-Lane MIPI CSI	
Audio	1 × I^2S TDM Tx/Rx (32-bit @ 768 kHz)	
Ethernet	1 × 1Gbps (with TSN and EEE)	1 × 2.5Gbps (with TSN)
Wi-Fi and Bluetooth	Wi-Fi IEEE 802.11 a/b/g/n/ac + Bluetooth 5.0	
USB	2 × USB 2.0	
UART	3 × Communication UART (1.8V)	1 × Debug UART (1.8V)
CAN	2 × CAN FD	
GPIO	13 × GPIO (Max.)	
SPI	2 × SPI	
I^2C	2 × I^2C	
PCIe	1 × PCIe 3.0 ×1	
SDIO	1 × SD/SDIO 3.0	
ADC	8 × 12-bit ADC	
Watchdog Timer	Supported	
RTC	Supported	

Product Outlines



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Ordering Information

Ordering No.	Operating System	Memory	Storage	Form factor
VT-SBC-SMARC-IMX952-A	Android	8GB	64GB	SMARC 2.1
VT-SBC-SMARC-IMX952-Y	Linux Yocto	8GB	64GB	SMARC 2.1

Packing List	
VT-SBC-SMARC-IMX952 computer-on-module	1

Since its establishment in 2002 by two Silicon Valley entrepreneurs, Vantron Technology has been at the forefront of the connected IoT devices and IoT platform solutions. Today, Vantron boasts a global customer base that includes many Fortune Global 500 companies. Its product lines cover edge intelligent hardware, IoT communication devices, industrial displays and BlueSphere cloud platforms.

With over 20 years of experience in R&D of intelligent edge hardware, Vantron has provided users with diverse embedded solutions featuring ARM and X86 architectures. Its offerings range from Linux, Android to Windows, from embedded to desktop level, and from gateways to servers. In addition, it provides users with system trimming, driver transplantation and more to cater to the unique needs of its users.

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