VT-SBC-SMARC-IMX93

Computer-on-Module

Product Brief

VT-SBC-SMARC-IMX93 Computer-on-Module (CoM) comes in a SMARC 2.1 form factor for easy integration into customers' development environment. It is powered by the NXP i.MX9331 single-core processor that integrates the scalable Arm Cortex-A55 core with a frequency up to 1.7GHz. Through integration of the features of the processor such as efficient machine learning acceleration, advanced security features, and optimal energy efficiency, the module is designed for smart home, IoT edge, Automotive, and industrial applications.

The module supports a rich set of interfaces, including multiple displays in the form of LVDS and MIPI DSI, high-speed serial buses like CAN, I^2C, UART, SPI, and USB 2.0, as well as diverse peripheral options such as GPIO and MIPI CSI. In addition, the module offers two gigabit Ethernet for connectivity. With extensive scalability options, the module reduces the development time and costs for customers.
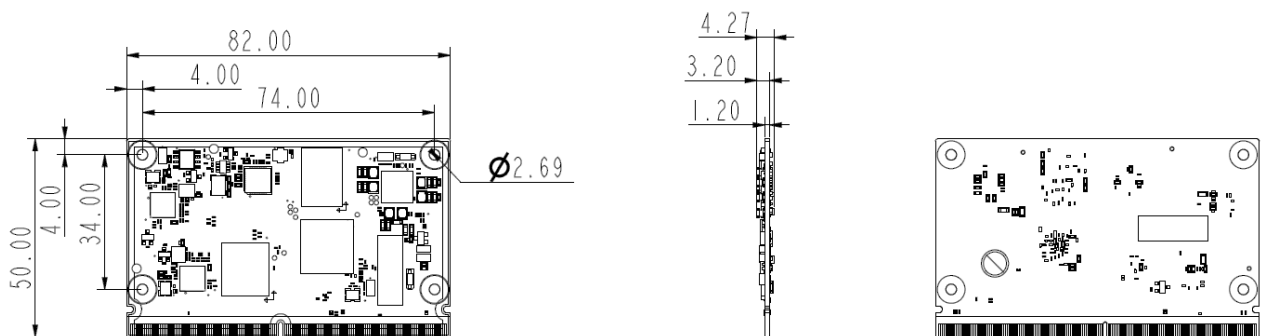
Exterior and Features

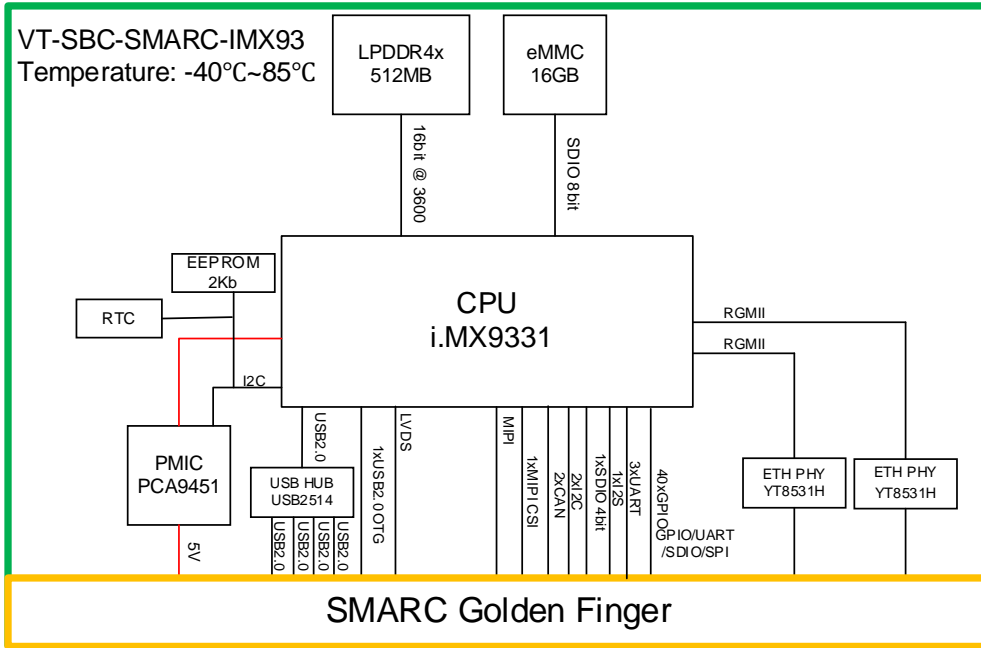| VT-SBC-SMARC-IMX93 |
|---|
| NXP i.MX9331 processor |
| Linux operating system |
| MIPI DSI and LVDS for video output |
| Rich interfaces for flexible expansion |
| Gigabit Ethernet |
| USB 2.0 Host and OTG |
| -40℃ ~ +85℃ operating temperature |
| SMARC 2.1 form factor |

VT-SBC-SMARC-IMX93 Computer-on-Module Datasheet

VT-SBC-SMARC-IMX93			
System	CPU	NXP i.MX9331, Single-core ARM Cortex-A55, up to 1.7GHz	
	Memory	512MB LPDDR4 (Optional: 2GB/8GB)	
	Storage	16GB eMMC 5.1	
	PMIC	PCA9451	
Communication	Ethernet	2 x 10/100/1000Mbps Ethernet	
Media	Display	1 x 4-Lane MIPI DSI	1 x 4-Lane LVDS
	Camera	1 x 2-Lane MIPI CSI	
	Audio	3 x ADC input	
		1 x I^{2}S	
I/Os	Serial	1 x Debug UART	
		3 x Communication UART (including one with flow control)	
	USB	1 x USB 2.0 OTG	4 x USB 2.0 Host
	GPIO	Up to 40 x GPIO (GPIO/UART/SDIO/SPI)	
	SDIO	1 x 4-Bit SDIO	
	Expansion bus	2 x I^{2}C	2 x CAN
	Key	1 x Power key	
	RTC	Supported	
	WDT	Supported	
Power	Input	5V/2A DC	
Software	Operating system	Linux	
Mechanical	Dimensions	82mm x 50mm SMARC 2.1	
Environment Condition	Temperature	Operating: -40℃~+85℃	
		Storage: -40℃~+85℃	
	Humidity	5%-95% RH (non-condensing)	

Product Outlines

Block Diagram

VT-SBC-SMARC-IMX93
Temperature: -40℃~85℃

LPDDR4x 512MB

eMMC 16GB

16bit @ 3600

SDIO 8bit

EEPROM 2Kb

RTC

CPU i.MX9331

RGMII

RGMII

I2C

PMIC PCA9451

USB HUB USB2514

USB2.0

LVDS

MIPI

1xUSB2.0 OTG

1xMIPI CSI

2xCAN

2xI2C

1xSDIO 4bit

1xI2S

3xUART

40xGPIO GPIO/UART /SDIO/SPI

ETH PHY YT8531H

ETH PHY YT8531H

5V

USB2.0 USB2.0 USB2.0

SMARC Golden Finger

Ordering Information

Ordering No.	CPU	I/Os	Form factor
VT-SBC-SMARC-IMX93	i.MX9331, ARM Cortex-A55, 1.7GHz (Max.)	2 Gigabit Ethernet, MIPI DSI, LVDS, MIPI CSI, UART, USB, GPIO, I^{2}C, CAN	SMARC 2.1 (82mm x 50mm)
* More variants with cellular and Wi-Fi features are available, please contact the sales executive for details.			

Packing list	
VT-SBC-SMARC-IMX93 computer-on-module	1
5V DC power adapter	1
AC power cord (US)	1
Qualified certificate	1

Optional accessory	
LPDDR4	2GB
	8GB
VT-SBC-SMARC carrier board	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.