

VT-SBC-RK3588S-NT

Single Board Computer



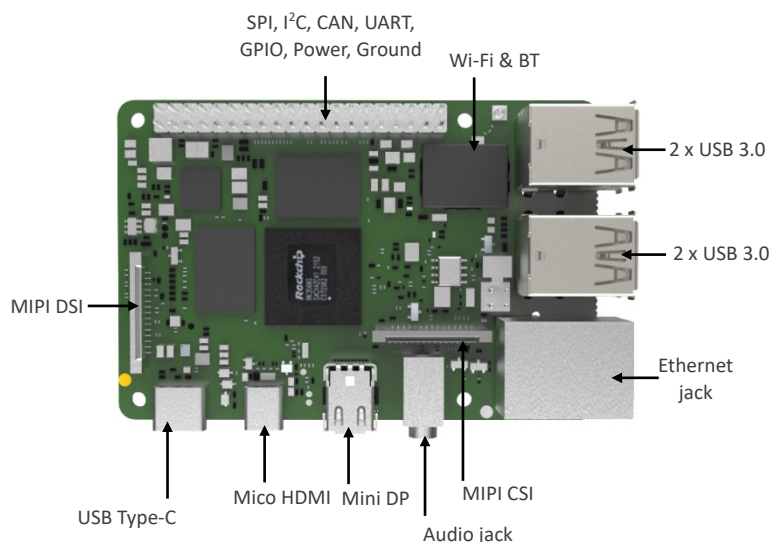
Brief Introduction

As a member of the NiceLit family, VT-SBC-RK3588S-NT single board computer is powered by Rockchip RK3588S, which is a low-power solution tailored for cost-sensitive devices while maintaining the powerful capabilities of its predecessor. It features an octa-core CPU architecture, combining 4x Cortex-A76 high-performance cores and 4x Cortex-A55 high-efficiency cores, delivering the power needed for demanding applications. The powerful ARM Mali-G610 MP4 GPU renders stunning visuals and supports advanced 3D graphics, while the 6 TOPS NPU enables cutting-edge AI and machine learning capabilities, empowering developers to create intelligent, adaptive systems.









VT-SBC-RK3588S-NT offers rich I/O options, including MIPI DSI, MIPI CSI, HDMI, USB, and UART for flexible integration and scalability. In addition, it supports up to three displays in extended mode and offers 8K video decoding and 8K encoding display outputs, making it perfect for digital signage, smart displays, and home entertainment systems.

Vantron NiceLit series targets at both commercial and industrial fields, empowering developers and businesses to accelerate time-to-market and deliver high-performance solutions.

Exterior and Features



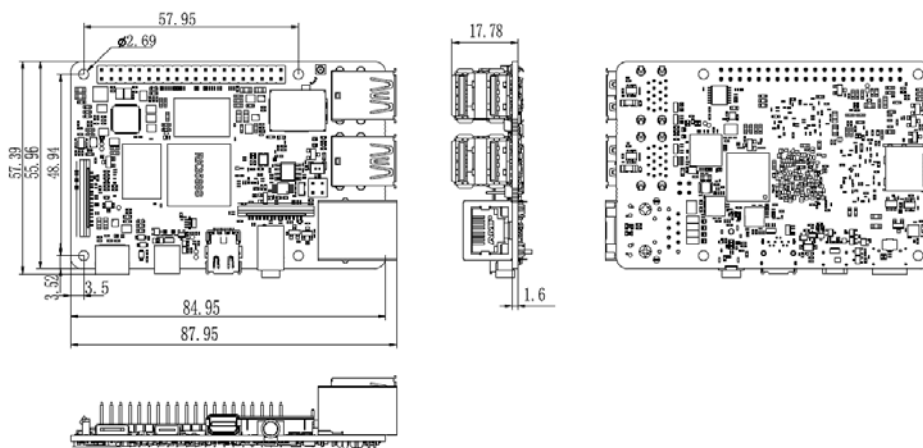
VT-SBC-RK3588S-NT

-  Rockchip RK3588S octa-core powerful processor
-  8K video decoding and 8K encoding
-  Up to three displays in extended mode
-  Rich interfaces for flexible expansion
-  Gigabit Ethernet
-  AI acceleration and edge computing
-  Optimized for energy efficiency
-  Compact and scalable

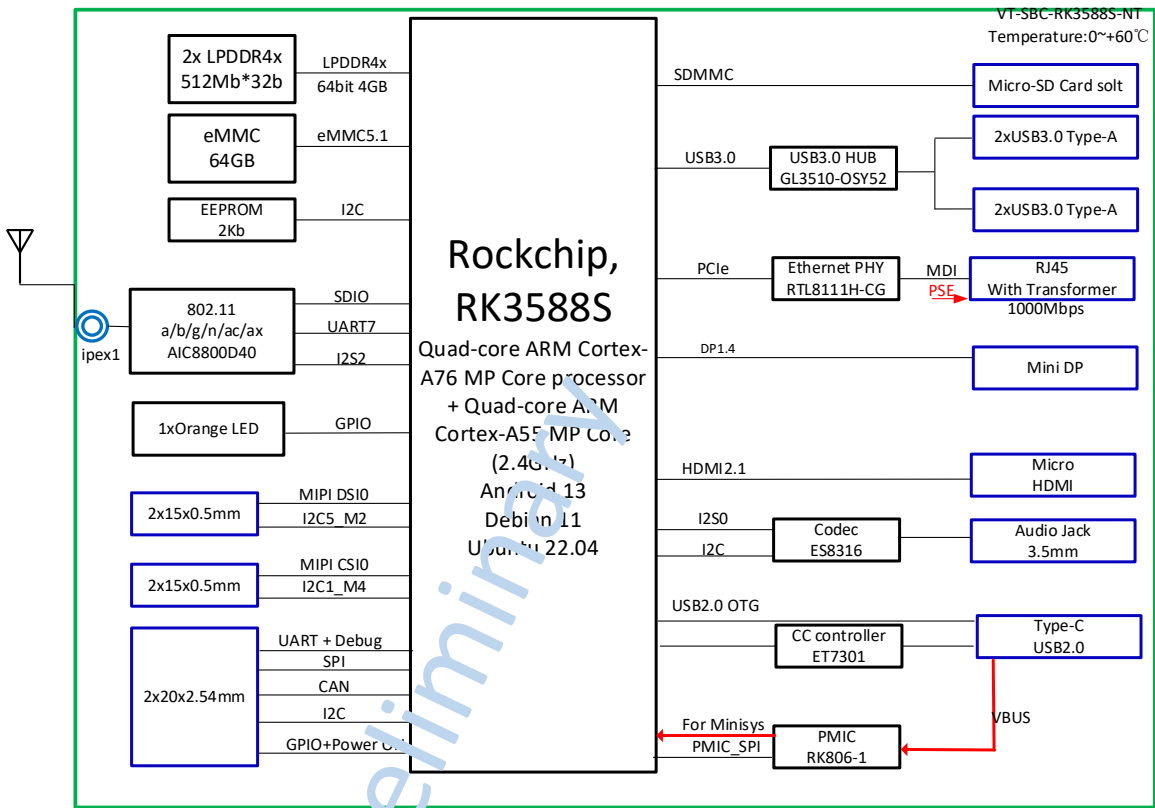
VT-SBC-RK3588S-NT Single Board Computer Datasheet

VT-SBC-RK3588S-NT			
System	CPU	Rockchip RK3588S Quad-core Cortex-A76 + Quad-core Cortex-A55, Max. 2.4GHz	
	GPU	ARM Mali-G610 MC4, Max. 1GHz (OpenGL ES1.1/2.0/3.2, OpenCL 2.2, Vulkan 1.2 supported)	
	NPU	6 TOPS, int4/int8/int16/FP16/BF16/TF32 supported	
	Memory	4GB LPDDR4x	
	Storage	64GB eMMC V5.1, HS400	1 x Micro SD slot, up to 128GB
Communication	Ethernet	1 x RJ45, 10/100/1000Mbps	
	Wi-Fi & BT	Wi-Fi IEEE 802.11 a/b/g/n/ac/ax + BT 5.4	
Media	Video processing	8K@30fps H.265/H.264 video encoder	8K@60fps H.265/8K@30fps H.264 video decoder
	Camera ISP	Up to 16MP: 4672 × 3504@30fps single ISP (HDR, 3DNR, 2DNR)	
	Display (support up to three displays in extended mode)	1 x 4-lane MIPI DSI (D-PHY/C-PHY), up to 4K@60Hz	
		1 x Mini DP 1.4, up to 4K@60Hz	
		1 x Micro HDMI 2.1, up to 4K@60Hz	
	Camera	1 x 4-lane MIPI CSI (D-PHY)	
I/O	Audio	1 x 3.5mm Combo audio jack (CTIA)	
	40-Pin GPIO header	4 x USB 3.0, Type-A	1 x USB 2.0, Type-C (power in, data transfer, OTG)
		2 x SPI	2 x CAN
		2 x I ² C	4 x UART (debug + communication)
		28 x GPIO (Max.)	
		2 x 5V Power pin	2 x 3.3V Power pin
		8 x Ground pin	
Miscellaneous	Antenna	1 x Wi-Fi & BT antenna connector (IPEX-1)	
	RTC	Supported	
Power	Watchdog timer	Supported	
	Input	5V/5A DC, USB Type-C	
Software	Operating system	Android 13, Debian 11, Ubuntu 22.04	
	Device management	BlueSphere MDM (Android version optional)	
Mechanical	Dimensions	87.95mm x 55.96mm x 17.78mm	
	Weight	55g (±5g)	
Environmental Condition	Temperature	Operating: 0°C ~ +60°C	Storage: -25°C~+85°C
	Humidity	10%-90%RH (Non-condensing)	

Product Outlines



Block Diagram



Packaging Information

Ordering No.	Processors	I/O	Operating System
VT- SBC-RK3588S-NT-A	RK3588S Octa-core CPU, ARM Mali-G610 GPU, 6 TOPS NPU	Micro HDMI, Mini DP, MIPI DSI, USB 2.0, USB 3.0, USB-C, UART, CAN, SPI, I ² C, GPIO	Android 13
VT- SBC-RK3588S-NT-D			Debian 11
VT- SBC-RK3588S-NT-U			Ubuntu 22.04

Packing list	
VT- SBC-RK3588S-NT single board computer	1
5V/5A USB power adapter & power cable	1 kit

Optional accessory	
Wi-Fi & BT antenna	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.