

VT-SBC-SMARC-RK3568-EVB

Evaluation Board



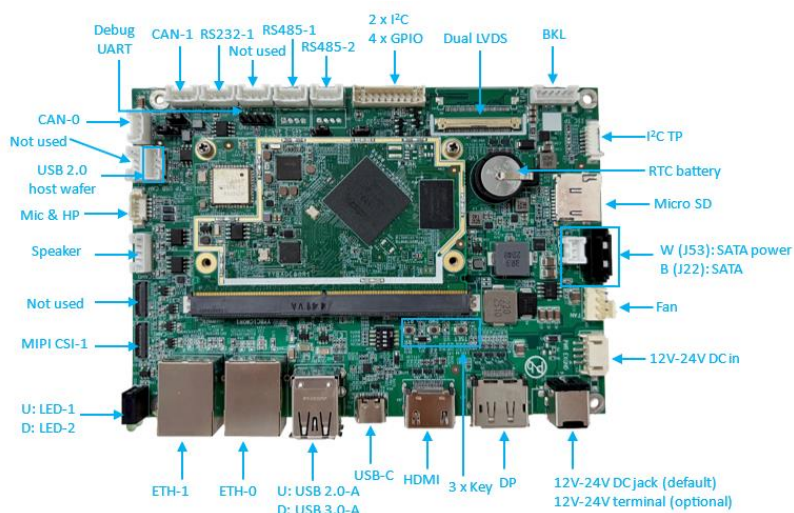
Product Brief

VT-SBC-SMARC-RK3568-EVB evaluation board builds on the computer-on-module by providing its functional pins through standard connectors and interfaces, greatly simplifying hardware connections and debugging for developers. It further incorporates power management, level conversion, and signal protection circuits to ensure stable and reliable operation of the computer-on-module.

VT-SBC-SMARC-RK3568 Computer-on-Module leverages the Rockchip RK3568 quad-core processor to deliver robust performance in a compact SMARC 2.1 form factor. The module integrates a quad-core ARM Cortex-A55 CPU, a high-performance ARM Mali-G52 GPU, and an NPU with up to 1 TOPS computing performance to handle complex workloads. It supports 4K H.265/H.264 video decoding and 1080p @60fps H.265/H.264 video encoding, ensuring optimal video output quality. It enables up to three independent displays via HDMI 2.0, eDP, and MIPI DSI/LVDS, ideal for digital signage, interactive kiosks, and medical imaging systems.

For connectivity, the module offers two MDI interfaces, supporting 10/100/1000Mbps Ethernet networking. A Wi-Fi and Bluetooth combo module offers a wireless connectivity option. In addition, various I/O signals are available for flexible expansion. VT-SBC-SMARC-3568 is ideally suitable for applications such as digital multimedia, smart retail, surveillance, edge computing, and industrial HMI.

Exterior and Features



Rockchip RK3568 quad-core processor



HDMI/DP/LVDS/MIPI DSI display interfaces



Ethernet/Wi-Fi/BT/4G/5G communication



Multiple I/Os for flexible expansion



Support Android and Ubuntu system

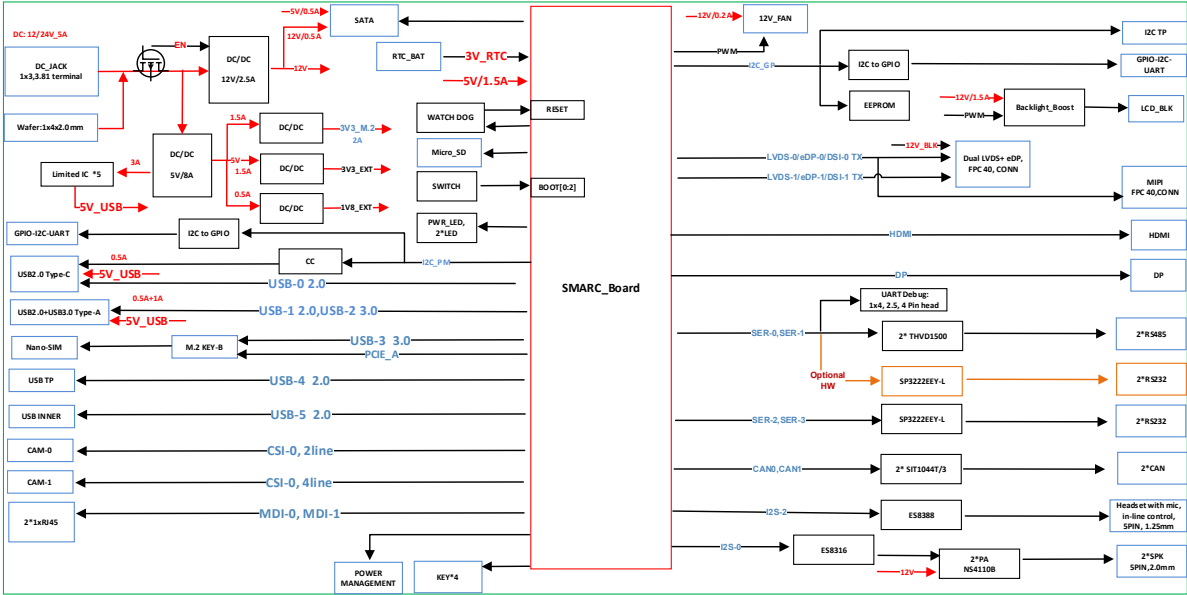


SMARC 2.1 form factor for easy integration

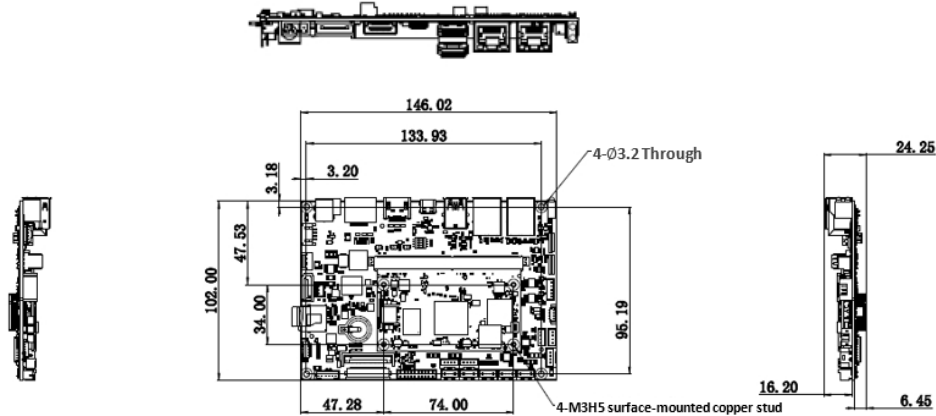
VT-SBC-SMARC-RK3568-EVB Evaluation Board Datasheet

VT-SBC-SMARC-RK3568-EVB			
System	CPU	Rockchip RK3568, quad-core ARM Cortex-A55 MPCore processor, up to 2.0GHz	
	GPU	Arm Mali G52-2EE GPU, OpenGL ES 1.1/2.0/3.2, OpenCL 2.0, Vulkan 1.0/1.1	
	NPU	1 TOPS, int8/int16/FP16/BF16	
	Memory	4GB LPDDR4	
	Storage	64GB eMMC 5.1	Supports M.2 B-Key / Micro SD expansion
Media	Video processing	4K H.265/H.264 video decoder, 1080p @60fps H.265/H.264 video encoder	
	Camera ISP	8MP for single-channel camera (HDR, 3A, CGC, 3DNR, 2DNR, sharpening, dehazing...)	
Communication	Ethernet	2 × RJ45, 10M/100/1000Mbps	
	Wi-Fi & Bluetooth	Wi-Fi IEEE 802.11 a/b/g/n/ac + Bluetooth 5.0	
	Cellular Network	Optional, supports M.2 B-Key expansion for 4G/5G	
I/O	USB	1 × USB 2.0 Type-A	1 × Internal USB 2.0 host
		1 × USB 3.0 Type-A	1 × USB Type-C (Supports OTG)
	Serial port	2 × RS232	2 × RS485
		1 × Debug UART	
	Display	2 × Single MIPI DSI, up to 1920 × 1080@60Hz / 1 × Dual MIPI DSI, up to 2048 × 1536@60Hz /	
		2 × Single LVDS, up to 1280 × 800@60Hz / 1 × Dual LVDS, up to 1920 × 1080@60Hz	
		(Default configuration is dual LVDS)	
		1 × HDMI 2.0a, up to 1080p@120Hz and 4096 × 2304@60Hz	
	Backlight	1 × DP, up to 2560 × 1600@60Hz	
		1 × Backlight power connector	
	Camera	1 × 4-channel MIPI CSI	
	Audio	1 × Microphone + Headphone connector	1 × 4Ω/5W speaker
	TP	1 × I ² C TP	
	CAN	2 × CAN	
	GPIO	4 × GPIO	
Expansion	Fan	1 × Fan header	
	SD card slot	1 × Micro SD card slot	
	Button	1 × MASKROM (CoM SW1)	1 × Power button (Carrier board, SW1)
		1 × Reset button (Carrier board, SW2)	1 × Test button (Carrier board, SW3)
	M.2 slot	1 × M.2 B-Key (2242/3.52), PCIe GEN3 x1 for SSD or 4G/5G expansion	
Other	Reliability	Support RTC and WDT	
Power	Input	12V-24V DC	1 × Power jack, 1 × 4-pin power terminal
Software	Operating system	Android, Ubuntu, Yocto	
	Device management	BlueSphere MDM (Optional for Android version)	
Mechanical	Dimensions	146.02mm × 102mm × 24.25mm (EVB)	82mm × 50mm × 4.5mm (CoM)
Environmental Condition	Temperature	Operating: 0°C ~ +60°C	Optional: -20°C ~ +70°C
		Storage: -20°C ~ +80°C	Optional: -55°C ~ +85°C
	Humidity	5%- 95% RH (Non-condensing)	

Block Diagram



Product Outline



Ordering Information

Ordering No.	OS	Memory	Storage	Form Factor
VT-SBC-SMARC-RK3568-EVB-A	Android	4GB	64GB	SMARC 2.1
VT-SBC-SMARC-RK3568-EVB-U	Ubuntu	4GB	64GB	SMARC 2.1

Packing List	
VT-SBC-SMARC-RK3568-EVB Evaluation Board	1

Optional Accessories	
Power Adapter (12V=5A output)	1
LVDS Touchscreen Kit	1
MIPI Camera	1
Serial-to-USB Debugging Kit	1
Wi-Fi & Bluetooth Antenna & Feeder	1

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