

VT-CB-SMARC Carrier Board



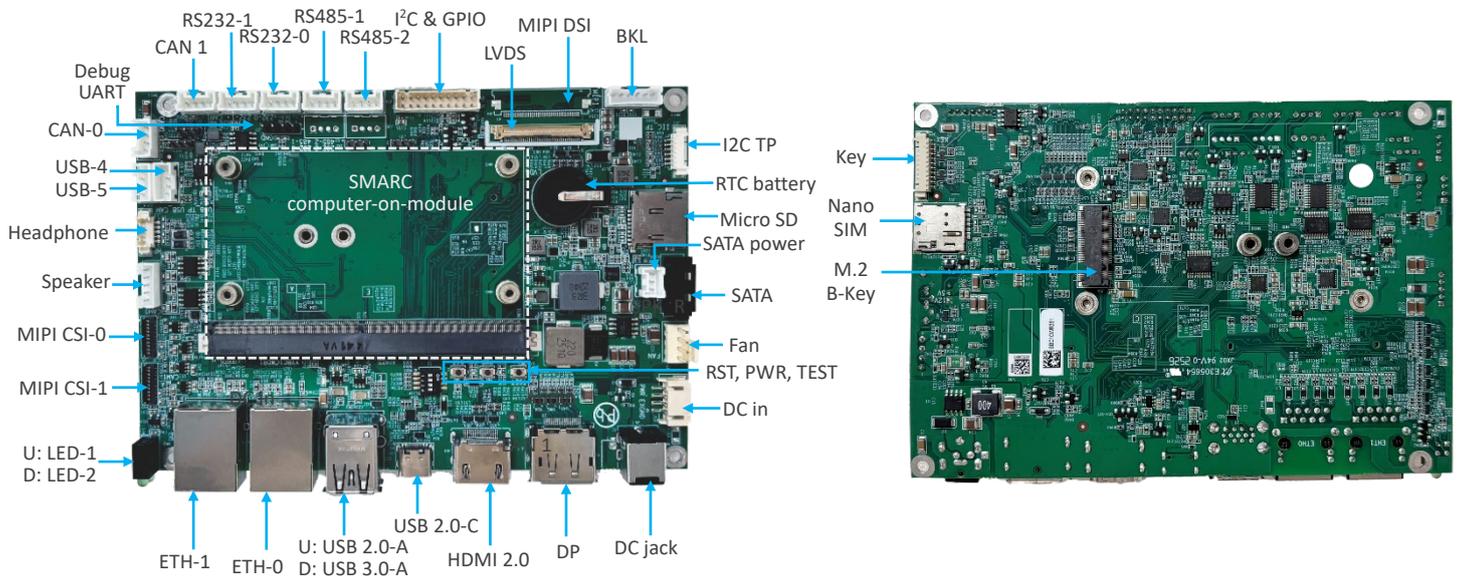
Product Brief

The VT-CB-SMARC carrier board is designed for Vantron SMARC-form-factor computer-on-modules, featuring rich peripheral interfaces to enable rapid validation of module functionality.

Built to the SMARC 2.1 specification, the carrier board seamlessly integrates the module's processor, memory, and storage with a comprehensive set of industrial-grade I/O and expansion interfaces, including dual Gigabit Ethernet, USB 3.0/2.0, RS232/RS485, CAN bus, HDMI/DP/LVDS/MIPI DSI display outputs, audio, MIPI CSI-2 for camera input, M.2 for cellular expansion, and GPIO for custom control.

The carrier board supports a wide input voltage range and extended operating temperatures, ensuring reliable operation in harsh industrial settings. With its design replicable across different processor platforms, the carrier board enables scalable deployment in industrial automation, edge computing, embedded IoT, and transportation applications.

Exterior and Features



 High-density edge connector for SMARC module edge fingers

 Multiple display options: HDMI, LVDS/MIPI DSI, DP

 Dual Gigabit Ethernet ports with integrated magnetics

 Rich expansion I/O: USB 3.0/2.0, RS232/485, I2C, GPIO, CAN

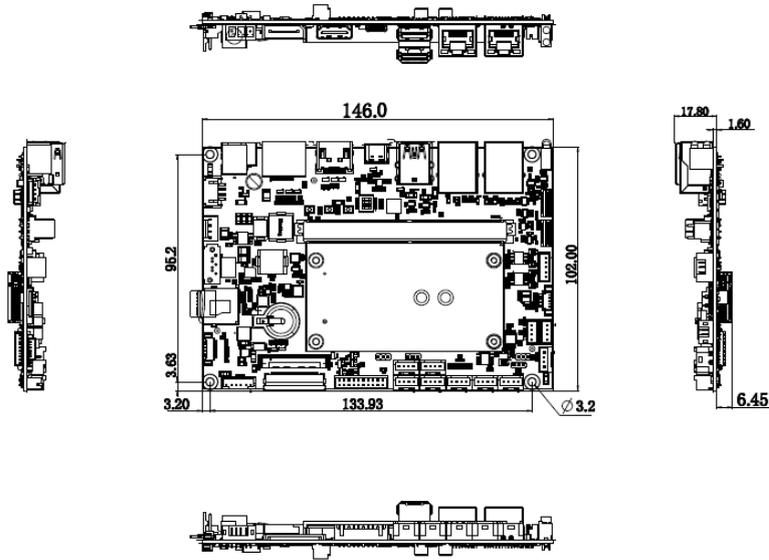
 Dual power inputs with support for wide input voltage

 Standard mounting holes

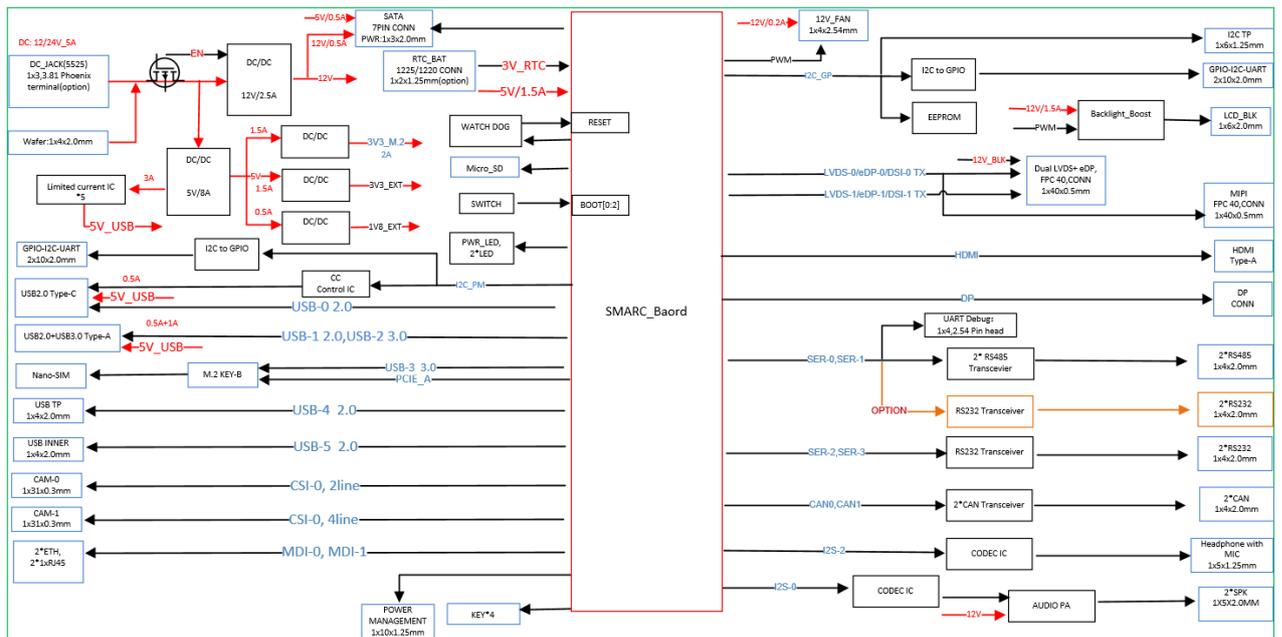
Specifications

VT-CB-SMARC Carrier Board				
Communication	Ethernet	2 x RJ45 (10/100/1000BASE-T)		
	4G/5G	Optional (expansion by M.2 B-Key)	1 x Nano SIM slot	
Media	Display	1 x HDMI 2.0		
		1 x 4-lane LVDS/MIPI DSI		
		1 x DisplayPort		
	Backlight	1 x 6-pin backlight connector		
	Camera	2 x MIPI CSI (D-PHY)		
	Audio	1 x 5-pin speaker	1 x 4-pin headphone + mic	
I/O	COM	2 x RS485 (4-wire)	2 x RS232 (4-wire)	
	Debug	1 x Debug UART (1.8V)		
	USB	1 x USB 2.0 Type-A	1 x USB 2.0 Type-C (OTG)	
		1 x USB 3.0 Type-A	2 x 4-pin internal USB	
	CAN	2 x CAN		
	GPIO & I ² C (20-pin)	2 x I ² C, 4 x GPIO		
	SATA	1 x SATA 3.0		
		1 x 3-pin SATA power connector		
	Fan	1 x Fan header (PWM, 12V)		
	SD	1 x Micro SD slot		
	RTC	1 x RTC battery socket		
	TP	1 x I ² C TP		
	Expansion	1 x M.2 B-Key (2242/3.52), PCIe GEN3 x1 for SSD or 4G/5G expansion		
System Control	Button	1 x Power key	1 x Reset key	
		1 x Test key	1 x Key connector (10-pin)	
	LED indicator	1 x SATA LED		
1 x Power LED				
2 x User-defined LED				
Power	Input	12V~24V	1 x DC jack	1 x 4-pin DC connector
Mechanical	Dimensions	146mm x 102mm x 24.25mm		
Environmental	Temperature	Operating: -40°C~+85°C		
Condition	Humidity	5%~95% RH (Non-condensing)		

Product Outlines



Block Diagram



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 several Fortune 500 companies. Its product lines cover edge intelligent hardware, IoT communication devices, industrial displays and BlueSphere cloud device management platform.

With over 20 years of experience in R&D of embedded edge intelligent hardware, Vantron has provided users with diverse embedded solutions featuring ARM and X86 architectures. Its offerings range from Linux to Windows, from embedded to desktop level, and from gateway to server. In addition, it provides users with system clipping, driver transplantation and other related services.