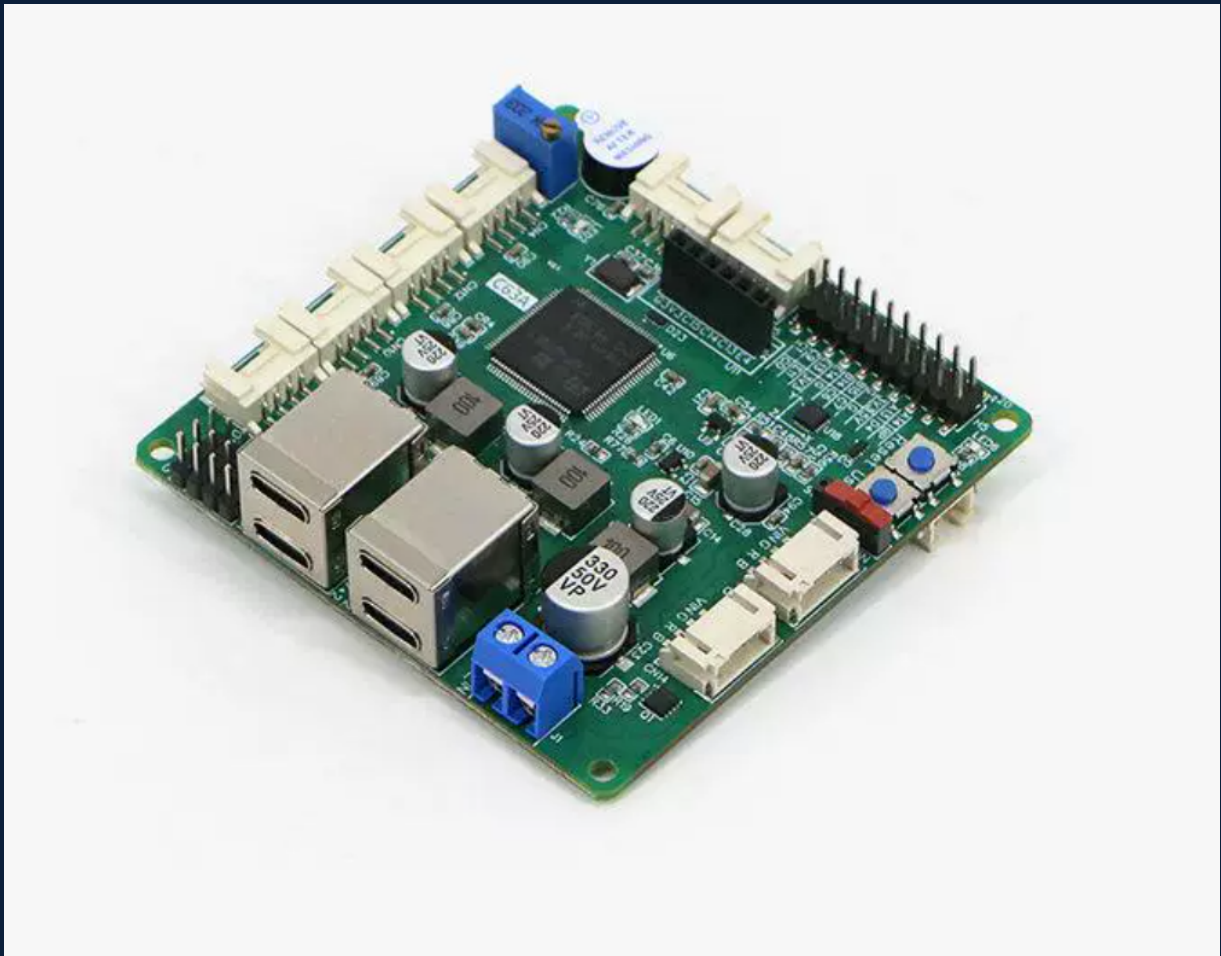


C63A Robot Control Board

Brushless-motor edition · STM32F407VET6 · Multi-platform CAN driver

English specification extracted from the original product package



75 × 75 mm

Industrial 4-layer PCB

10–28 V

Wide DC input

2 × 5 V / 5 A

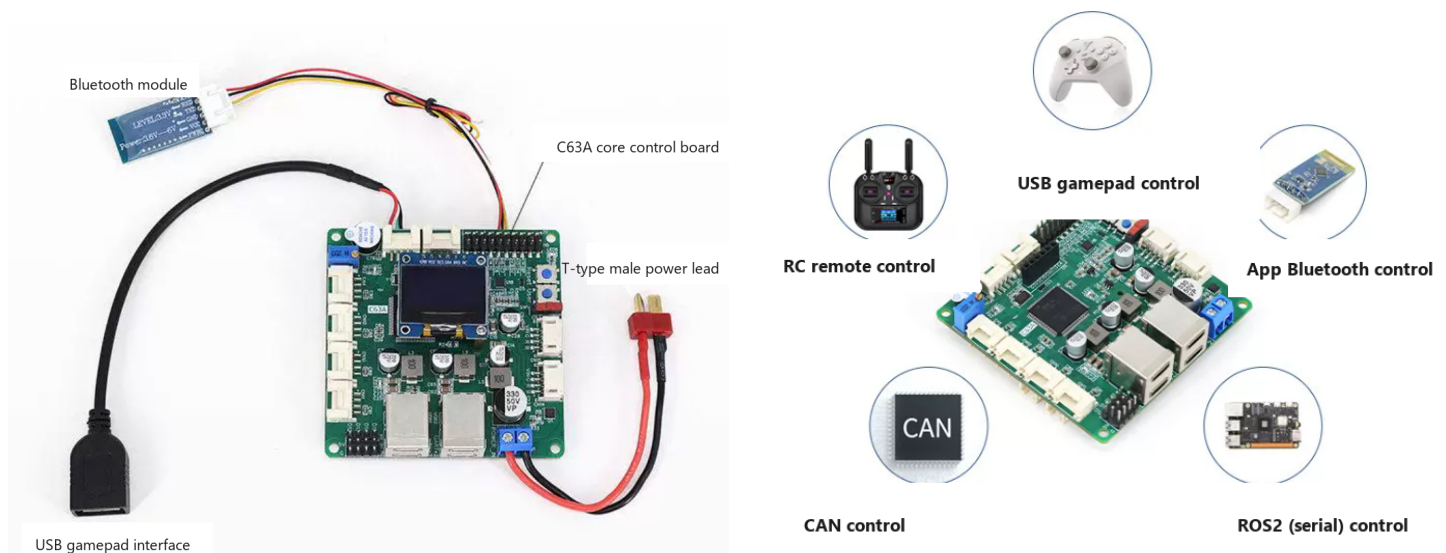
SBC-ready power

ROS2 SDK

Low-level code included

Product overview

C63A is a compact robot motion-and-I/O controller for AGV, service, and composite robots. A STM32F407VET6 MCU, ICM-20948 IMU, dual CAN, RS-485, SBUS, USB gamepad, Bluetooth, and ROS2 serial links let one board take joystick, RC, app, or host-computer commands and drive any CAN-input motor driver. Two independent 5 V / 5 A outputs can power a Jetson, RDK X5, or Raspberry Pi, with Type-C UART so no TTL adapter is required.



Control methods

- **USB gamepad** Plug-in USB host port on the rear of the board.
- **RC transmitter** 5 V RC / SBUS and PWM servo headers on the front edge.
- **Bluetooth app** External Bluetooth module on a dedicated rear connector.
- **CAN bus** Two independent CAN ports for motor drivers and vehicle networks.
- **ROS2 serial** Type-C / UART path to an SBC running ROS2.

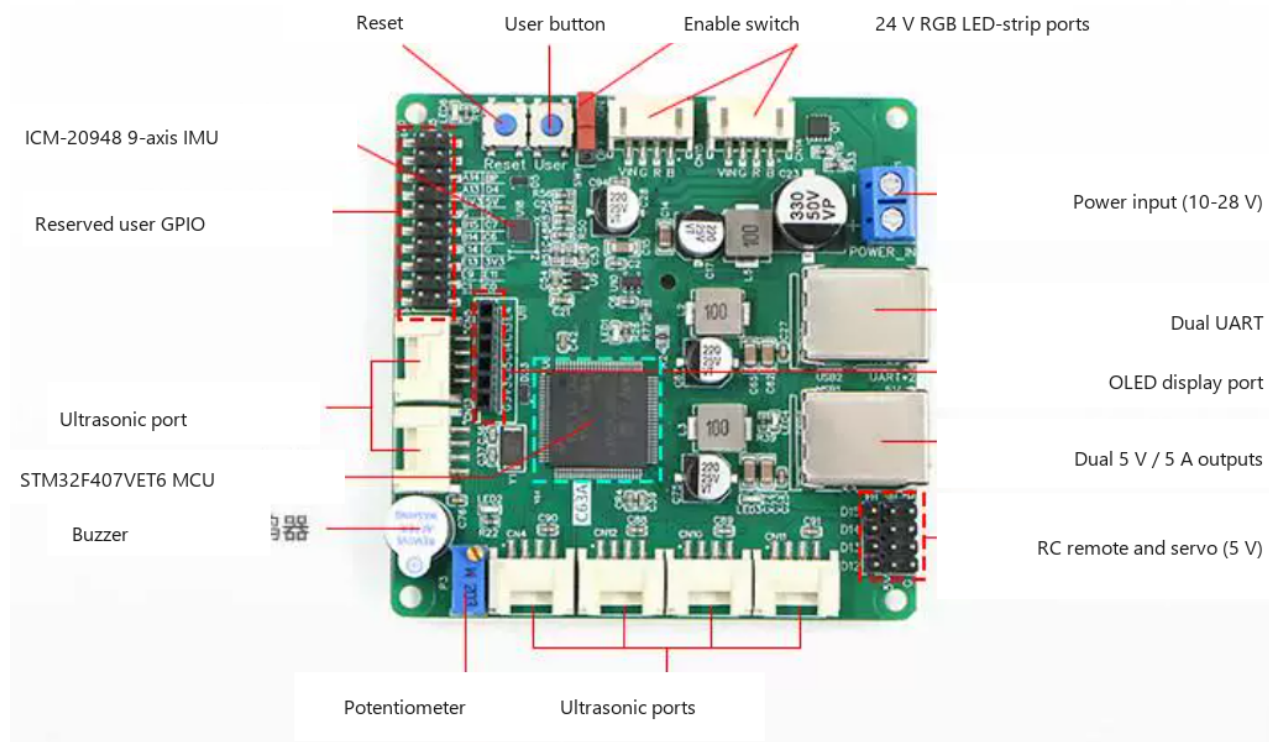
Optional accessories



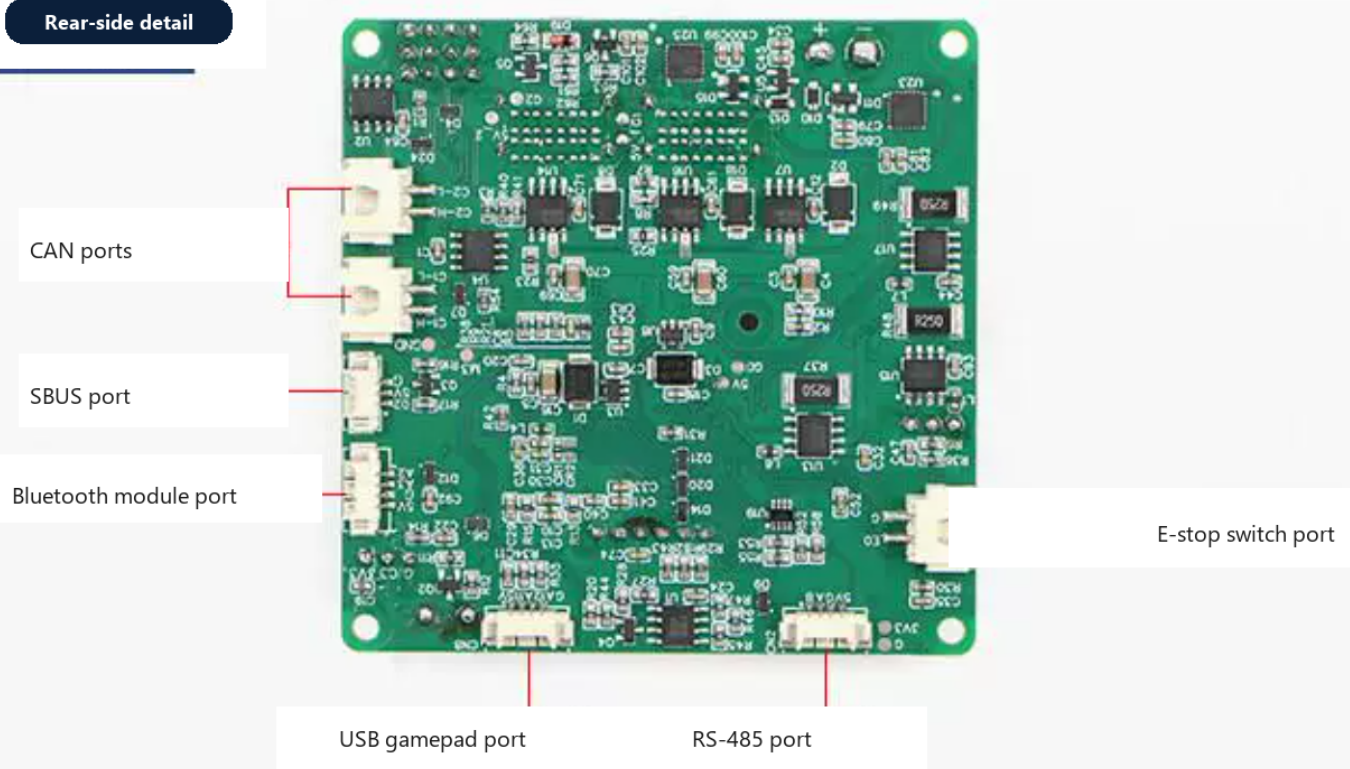
Electrical and mechanical specifications

Main MCU	STMicroelectronics STM32F407VET6
Motor interface	Any CAN-command motor driver (2× CAN)
PWM servos	4 channels
Ultrasonic ports	6
UART	3 reserved ports + Type-C UART to SBC
RGB LED-strip ports	2 × 24 V dimmable
Fieldbus	2× CAN, 1× RS-485, 1× SBUS
GPIO	Reserved user header, several dozen pins
IMU	TDK InvenSense ICM-20948, 9-axis
Compute software	ROS2 low-level stack and SDK provided
Input voltage	10 V to 28 V DC
Power output	2× independent 5 V / 5 A, plus 3.3 V / 5 V auxiliaries
Host SBCs	Jetson Nano, RDK X5, Raspberry Pi, similar USB-serial SBCs
Programming	UART one-click download; SWD reserved
Mechanics	75 × 75 mm, 61 g, Ø3 mm holes on 69 × 69 mm
PCB	Industrial 4-layer
Protection	Reverse, OV, OC, short-circuit; enhanced ESD; motor enable
HMI	Reset / user buttons, enable switch, OLED, buzzer, LEDs
E-stop	Dedicated rear e-stop connector
Control modes	USB gamepad, RC, Bluetooth app, CAN, ROS2 serial

Front and rear connector map

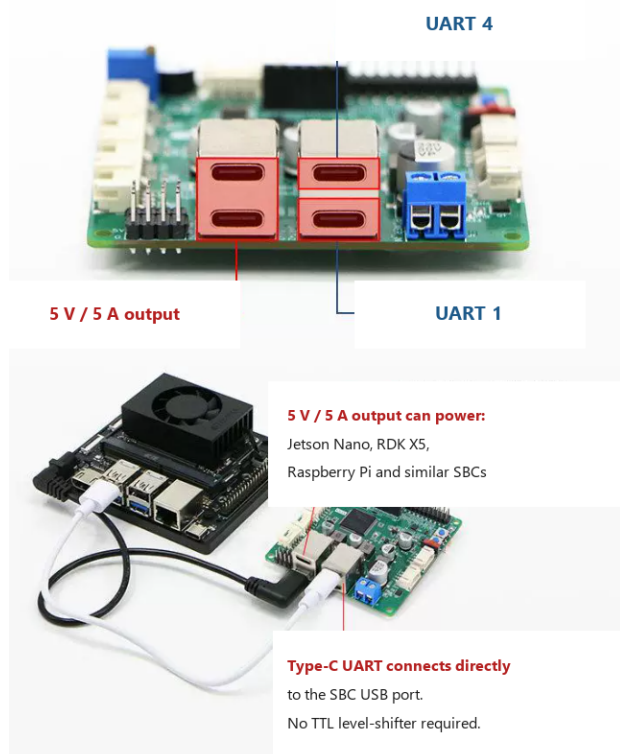


Rear-side detail



Silkscreen may read C63A. Keep 3 mm mounting screws on the 69 × 69 mm hole pattern.

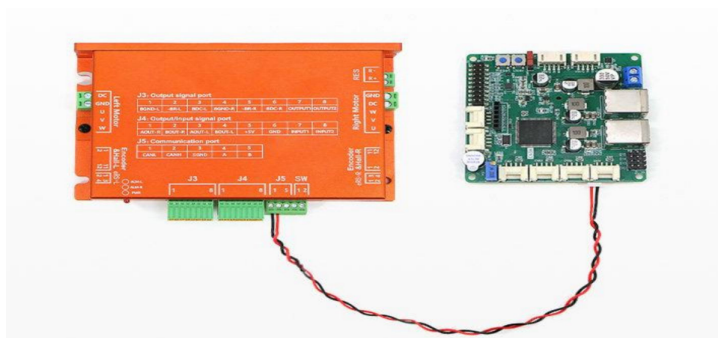
SBC power, CAN motion, and protection



08

Drives any CAN-interface motor driver

Two independent on-board CAN ports can command any motor driver that accepts CAN as its control input.



Brushless hub-motor drivers are available separately.

09 All-round ESD protection

The latest C63A adds extra ESD devices versus the previous revision, improving immunity to everyday electrostatic events and board reliability.

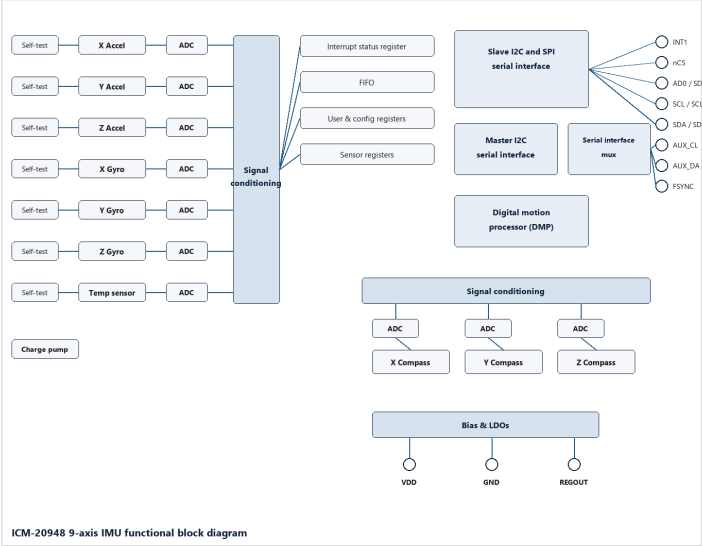


10 Built-in short-circuit protection

On-board 5 V and 3.3 V rails include short-circuit protection against wiring mistakes. The two high-current Type-C 5 V outputs are excluded.



ICM-20948 IMU architecture



Application examples

Platforms shown for reference only. Vehicles are not included.

S1000 Differential service robot



S2000 Brushless 4WD robot



S3000 Pro Open-source composite robot



S3000 Mini Open-source composite robot



Optional safety battery (not included with the bare board)

Optional 24 V LiFePO4 Safety Battery Pack



- LiFePO4 chemistry with optional metal enclosure
- UN38.3 air-transport safety certified
- Full-function BMS: short-circuit, over-charge, over-discharge, over-temperature and low-temperature charge/discharge protection
- Thermal-runaway onset far higher than NMC lithium-ion
- Preferred where abuse tolerance and cycle life matter

Electrical parameters	
Pack rating	22.4 V / 20000 mAh
Cell chemistry	LiFePO4
Cut-off voltage	16.5 V
Charge current	3 A
Full-charge voltage	25.55 V
Continuous discharge	40 A
Peak discharge	80 A
Charge connector	DC 4.0 x 1.7 mm female
Discharge connector	XT60-F female

Ordering and document notes

- Standard supply is the C63A control board. Bluetooth module, T-lead, USB cable, battery, gamepad, ultrasonics, and LED strip are optional.
- Ask for a white-enclosure accessory set if the application is a light-colored service robot.
- Low-level firmware, schematic-level interface notes, and a ROS2 SDK are provided with the board.
- This English datasheet was prepared from the original Chinese product package (images + listing). Confirm critical ratings before production use.
- Document: C63A-DS-EN-001 Rev A · SiCore Dynamics · September 2026