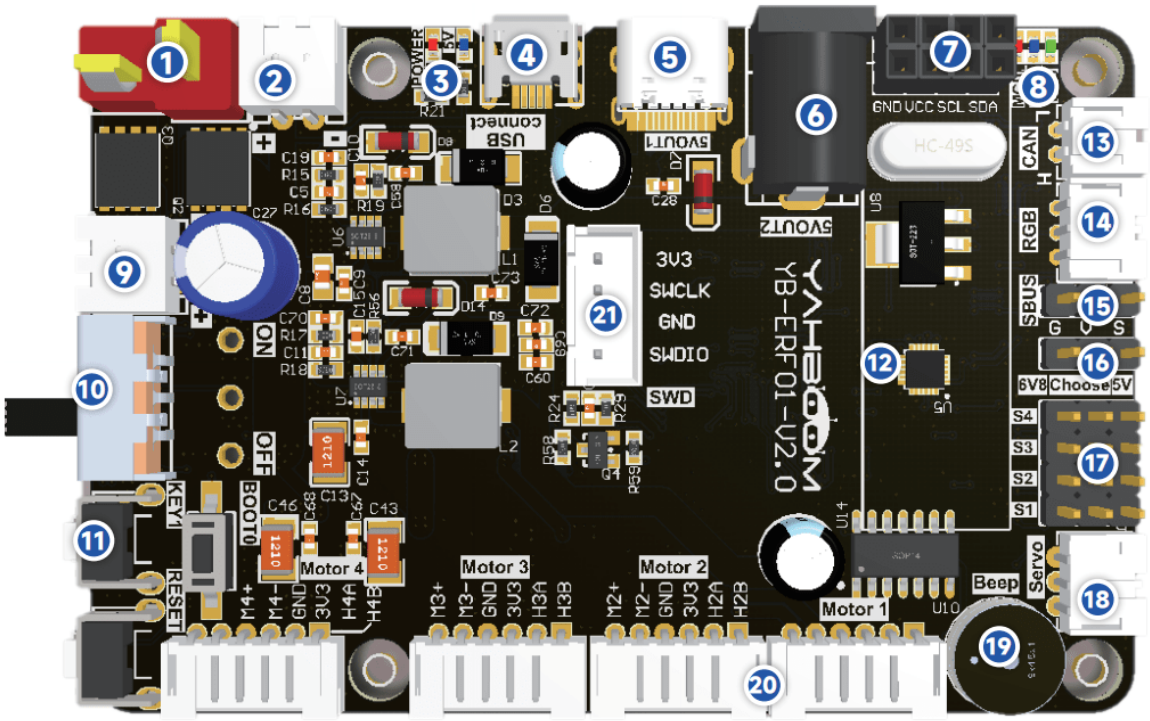
1.Introduction to expansion board

Statement:

ROS driver board function tutorial is mainly based on ROS expansion board resources, some components (such as PWM servo, serial port servo, etc.) are not included in RDK-X5-Robot robot car.

1.1. Distribution diagram of components on the front of the expansion board



① T-type DC 8V power input port: serves as the main power input of the expansion board and connects to the DC 8V power supply or 8V battery.

②⑨DC 8V power output: Supply DC 8V power to the outside.

③ Power indicator: indicates whether the power supply is normal.

④micro USB data interface: connect the host communication and burning program.

⑤type-C interface: provides DC 5V to the outside, only power supply can not communicate.

⑥DC 5V output interface: can supply power to Jetson Nano.

⑦I2C interface: It can be connected to external I2C devices, such as OLED screens.

⑧ Indicator: data indicator and 6.8V voltage indicator.

⑩DC 8V power switch: main power switch.

⑪ Key: Key KEY1: A user function key that enables customization through programming. Button RESET: on-board MCU reset button. Key BOOT0: The on-board microcontroller BOOT0 key is used for microcontroller to enter the burning mode.

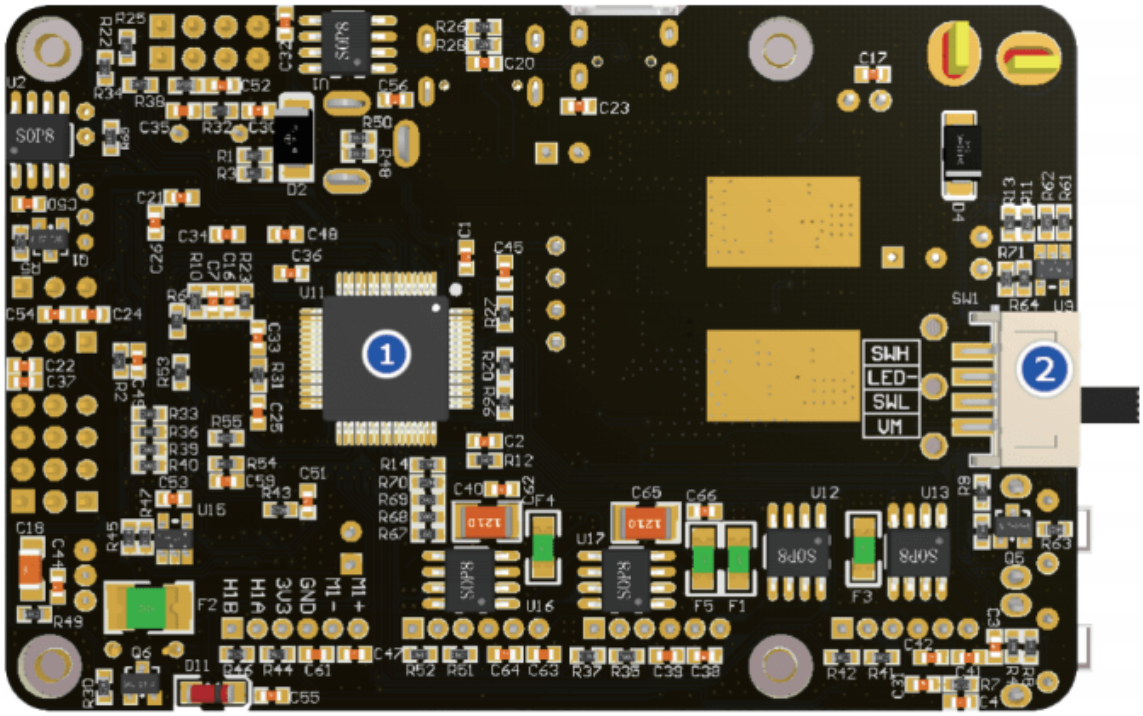
⑫ Nine-axis attitude sensor: provides the current attitude of the expansion board.
⑬ CAN interface: connection CAN equipment.
⑭ RGB color lamp interface: connect the RGB color lights.
⑮ The SBUS interface: Connects to the receiver of the model airplane remote control.

⑯ PWM servo voltage switch: change the position of the jumper cap can choose 6.8 V or 5 V voltage of PWM servo power supply.
⑰ PWM servo interface: can be connected to 6.8 V or 5 V voltage PWM servo, need to choose the corresponding voltage according to the servo voltage in ⑯.
⑱ serial interface: the steering gear is connected to a serial port servo manipulator.
⑲ Buzzer: used to sound alarms.

⑳ four-way motor connection port: Connect four motors. Please refer to the corresponding course documents according to the connection method of different models.

㉑SWD debugging port: Connects to the SW port on the ST-Link or J-Link, and is used to debug the MCU or download the firmware of the MCU.

1.2. Distribution diagram of components on the back of the expansion board



① On-board microcontroller: mainly responsible for the control of peripherals on the expansion board, such as buzzer, motor drive, etc.
② Metal button switch PH2.0 interface: external metal switch can be connected in parallel with the on-board power switch, only need to open one of the switches, you can turn on the power.