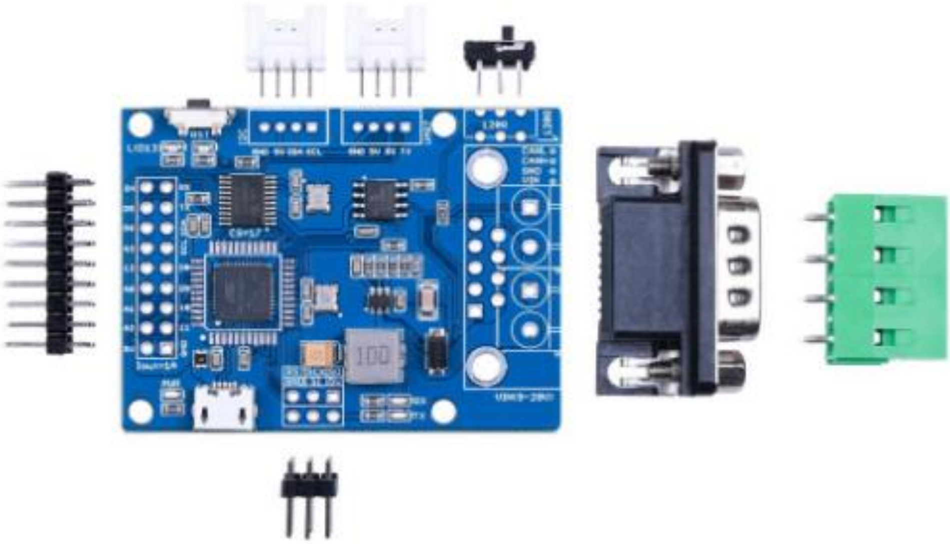


CANBed - Arduino CAN-BUS Development Kit (ATmega32U4 with MCP2515 and MCP2551)

SKU 102991321

CANBed - Arduino CAN-BUS Development Kit embeds an **ATmega32U4 chip**, which means you don't need to add other jump wires to another Arduino Board, it is an Arduino board itself plus MCP2515 CAN Bus controller and MCP2551 CAN Bus transceiver!

Features

- **Enhanced MCU Performance:** ATmega32U4 with Arduino Leonardo bootloader on the board
- **Compatible with Arduino:** Combines CAN-BUS shield and Arduino development board together on a single board
- **High Speed:** Implements CAN V2.0B at up to 1 Mb/s
- **Rich Resources in Pins:** 18 pins that include digital pins, analog pins, UART, and I2C interface
- **Easy to Use:** Requires no other MCU to control and is compatible with Arduino IDE

CAN-BUS is a common protocol and widely used in industry due to its long travel distance, medium communication speed, and high reliability. Now you can realize a CAN-BUS project through this tiny little development board.

Because of the ATmega32U4 onboard chip, this board has rich resources in pins. As a matter of fact, there are 18 pins based on the core chipset up on the board, which include digital pins, analog pins, UART, and an I2C interface. Besides, this CANBed adopts the MCP2515 CAN Bus controller with SPI interface and MCP2551 to achieve the CAN-Bus capability. There are also two kinds of CAN Bus interfaces for various demands which are sub-D9 connector and terminal block interface. They would fit all your needs in the connecting method.

This CAN-Bus development board is perfectly compatible with Arduino IDE. With the help of the Arduino CAN-Bus library, you will save plenty of time for your CAN project.

What is CAN-BUS?

CAN stands for *Controller Area Network*, it is used to allow microcontrollers and devices to communicate with each other within a vehicle without a host computer which allows for control and data acquisition. These devices are also called Electronic Control Units (ECU) and they enable communication between all parts of a vehicle.
Today, you can find up to 70 ECUs in a modern car. CAN is a serial communication bus designed for industrial and automotive applications. For example, they are found in vehicles, farming equipment, industrial environments, etc.

How does CAN-BUS work?

The fuel level, door sensors, odometer, and many more parts of a car have to communicate with each other somehow, and CAN BUS is what they used to do. These CAN-compatible components, which are called “nodes” are connected with a 3-string copper wire, with no central router to govern the flow of data. Every node can hear the messages of every other node.

Every node has an ID, where the ones with the higher priority ID can have the priority to “talk” first while the others “listen”. This is to ensure that there are never two nodes talking at the same time. The biggest benefit of CAN-BUS is to be able to just connect components without having to worry about signal routing.

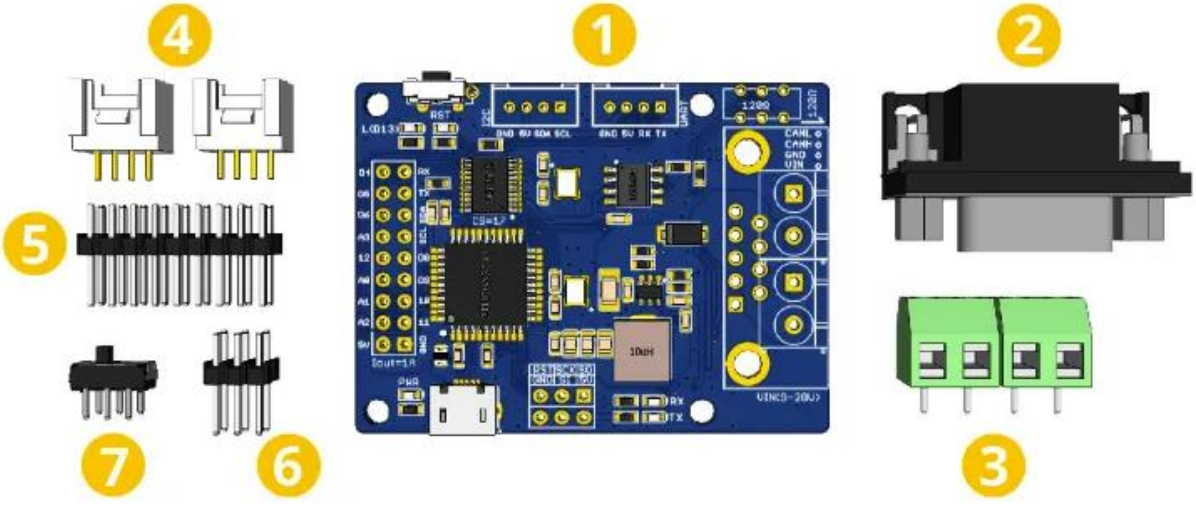
Application

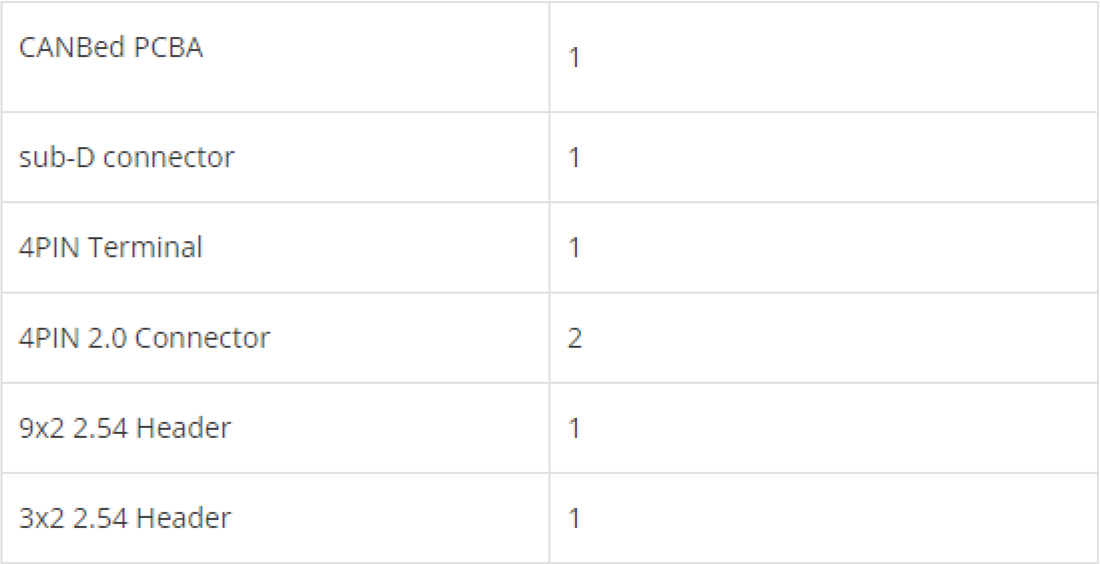
- Car hacking: The user can connect the circuit board to the OBD interface through the sub-D connector to read the data of the car
- Easy building prototype: ATmega32U4 chip leads out various additional functions which help especially beginners build various prototypes.

Specification

- MCU - ATmega32U4(with Arduino Leonardo bootloader)
- Clock Speed - 16MHz
- Flash Memory - 32KB
- SRAM - 2.5KB
- EEPROM - 1KB
- Operate Voltage （CAN-BUS ）- 9-28V
- Operate Voltage （MicroUSB ）- 5V
- Input Interface - sub-D

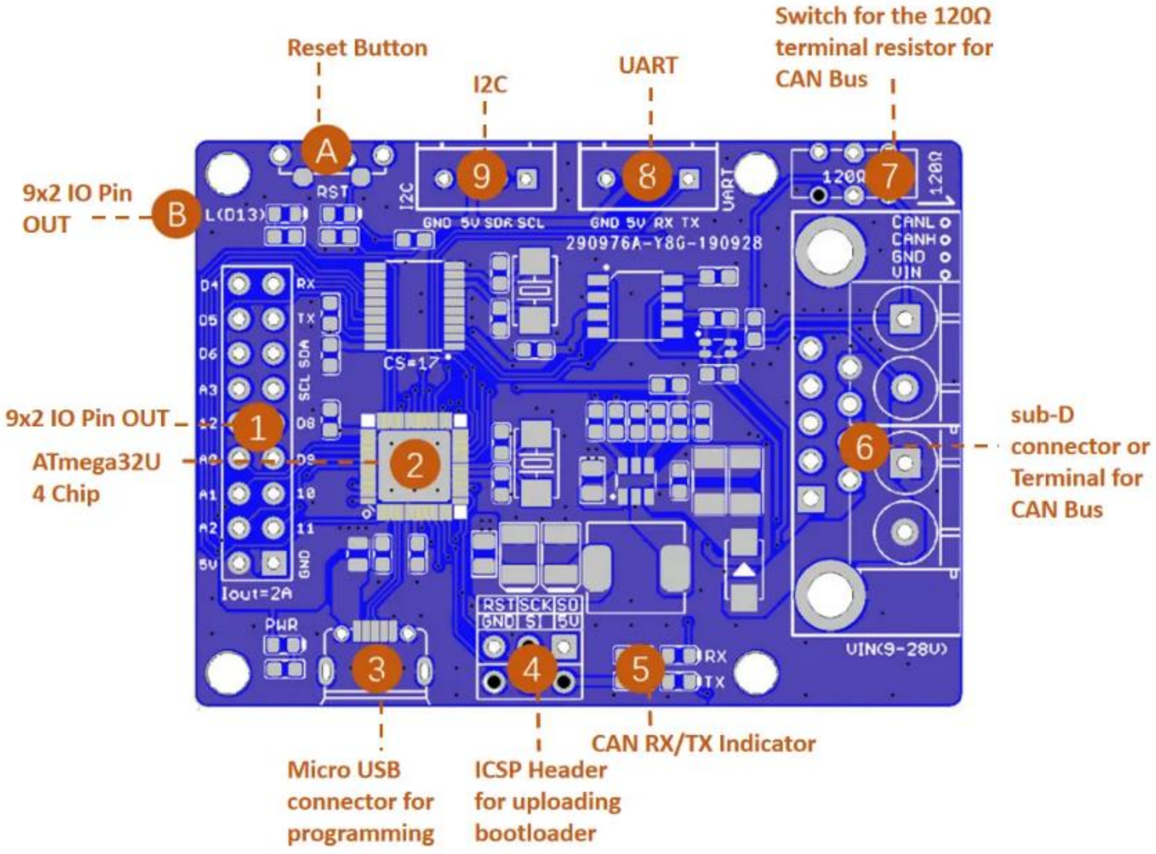
Part List





CANBed PCBA	1
sub-D connector	1
4PIN Terminal	1
4PIN 2.0 Connector	2
9x2 2.54 Header	1
3x2 2.54 Header	1

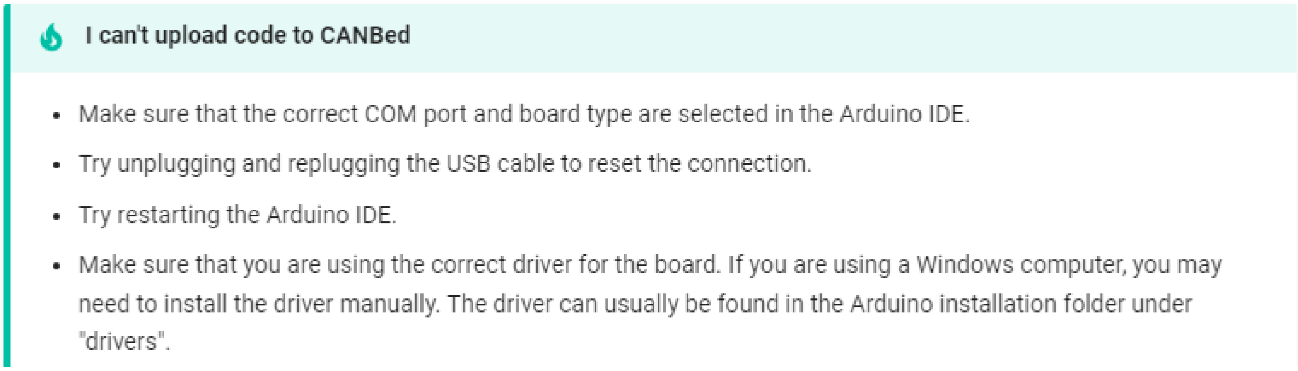
Hardware Overview


Reset Button
A
I2C
9
UART
8
Switch for the 120Ω terminal resistor for CAN Bus
7
9x2 IO Pin OUT
B
9x2 IO Pin OUT
1
ATmega32U 4 Chip
2
sub-D connector or Terminal for CAN Bus
6
3
4
5
Micro USB connector for programming
ICSP Header for uploading bootloader
CAN RX/TX Indicator

D-Sub CANbus PinOut

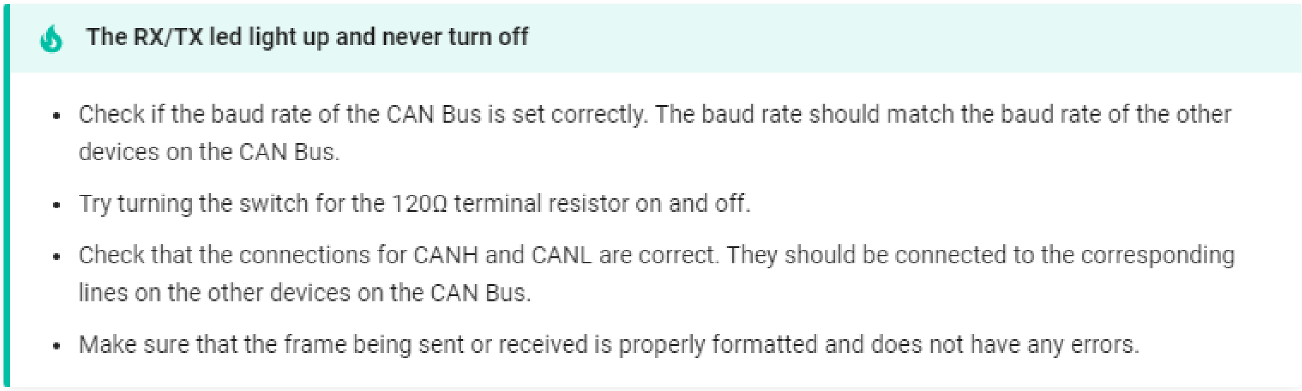
pin#	Signal names	Signal Description
1	Reserved	Upgrade Path
2	CAN_L	Dominant Low
3	CAN_GND	Ground
4	Reserved	Upgrade Path
5	CAN_SHLD	Shield, Optional
6	GND	Ground, Optional
7	CAN_H	Dominant High
8	Reserved	Upgrade Path
9	CAN_V+	Power, Optional

FAQ



I can't upload code to CANBed

- Make sure that the correct COM port and board type are selected in the Arduino IDE.
- Try unplugging and replugging the USB cable to reset the connection.
- Try restarting the Arduino IDE.
- Make sure that you are using the correct driver for the board. If you are using a Windows computer, you may need to install the driver manually. The driver can usually be found in the Arduino installation folder under "drivers".



The RX/TX led light up and never turn off

- Check if the baud rate of the CAN Bus is set correctly. The baud rate should match the baud rate of the other devices on the CAN Bus.
- Try turning the switch for the 120Ω terminal resistor on and off.
- Check that the connections for CANH and CANL are correct. They should be connected to the corresponding lines on the other devices on the CAN Bus.
- Make sure that the frame being sent or received is properly formatted and does not have any errors.