

CH346 Evaluation Board Reference

1. Overview

This evaluation board is used to demonstrate the functions of the USB2.0 to high-speed FIFO/SPI/UART interface chip CH346C, which is TTL level. It can be used to test the CH346C's full serial port function, GPIO function (Working Mode 0: 2-channel, Working Mode 1: 8-channel, Working Mode 2: 12-channel), parallel FIFO function, and SPI interface function. Both the parallel FIFO and SPI interfaces are working in slave mode and need to be used in conjunction with a parallel host or SPI host working in master mode. The evaluation board provides a parallel FIFO transceiver indicator and USB configuration completed status output and other indicators, support for 3.3V/2.5V/1.8V and other voltages of the interface communication, all interfaces have been through the pin-out.

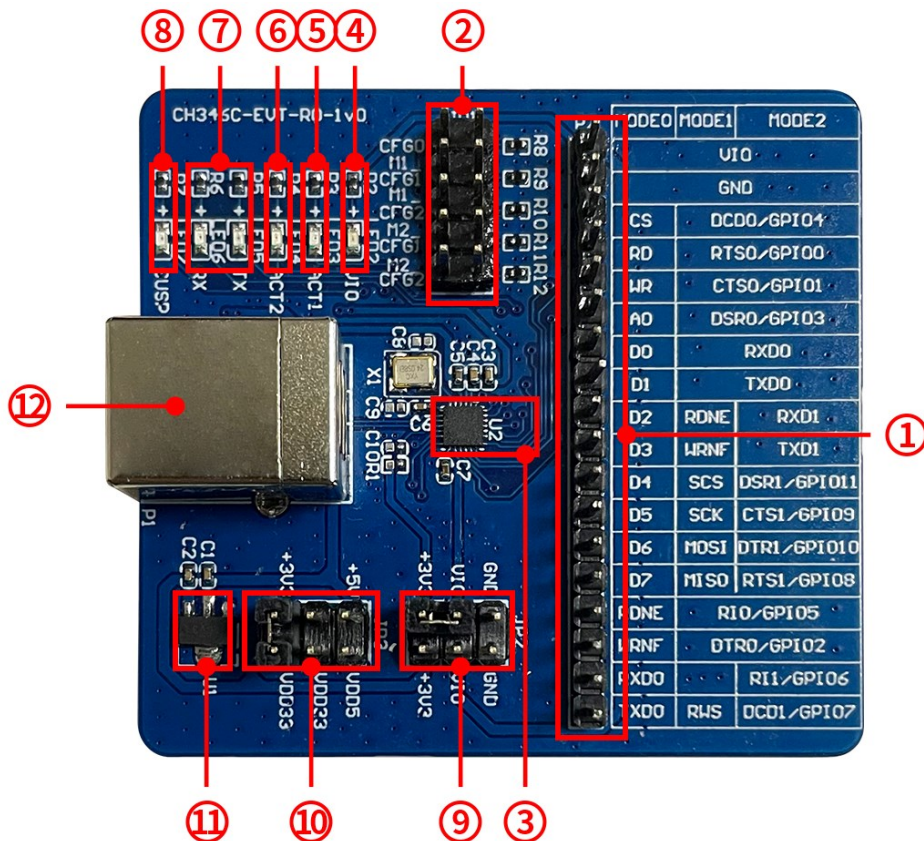
CH346C has a built-in EEPROM, the parameters of the chip can be configured through the dedicated configuration software CH34xSerCfg.exe, such as VID, PID, vendor information and product information strings.

2. Evaluation Board Hardware

2.1. CH346C High-Speed USB to FIFO&SPI&UART

Refer to CH346SCH.pdf document for evaluation board design.

The picture of the evaluation board is shown below:



Function description of each unit:

- ①: Hardware interface for parallel FIFO & SPI & serial ports, with interface function selected by chip working mode.
 Working Mode 0: Parallel FIFO hardware interface and single serial port;
 Working Mode 1: SPI hardware interface and single serial port;
 Working Mode 2: Dual serial port interfaces;
- ②: Function configuration pins CFG0, M1_CFG1/M1_CFG2, M2_CFG1/M2_CFG2, the function pin configuration method is as follows:

Configuration Pin	Functional Description
CFG0	Configure to Working Mode 2 if CFG0 pin detects low level; otherwise configure to Working Mode 0/1
M1_CFG1	CFG1 configuration pin in Working Mode 1; during power-up, if this pin detects an external pull-down resistor, serial port 0 automatically enables the hardware flow control function.
M1_CFG2	CFG2 configuration pin in Working Mode 1; during power-up, if the pin detects an external pull-down resistor, the RI0/TNOW0 pin is configured for TNOW0 function; otherwise, the RI function and TNOW function are configured by detecting the level of the RI0/TNOW0 pin during power-up, with a high level to enable RI function and a low level to enable the TNOW function.
M2_CFG1	CFG1 configuration pin in Working Mode 2; during power-up, if this pin detects an external pull-down resistor, all serial ports automatically enable the hardware flow control function.
M2_CFG2	CFG2 configuration pin in Working Mode 2; during power-up, if the pin detects an external pull-down resistor, the RIx/TNOWx pin is configured for the TNOWx function; otherwise, the RI function and TNOW function are configured by detecting the level of the RIx/TNOWx pin during power-up, with a high level to enable RI function and a low level to enable TNOW function.

- ③: Main control chip CH346C
- ④: VIO power indicator LED
- ⑤: ACT pin indicator LED in Working Mode 1, used to indicate USB configuration completion status
- ⑥: ACT pin indicator LED in Working Mode 2, used to indicate USB configuration completion status
- ⑦: Parallel FIFO transmit/receive indicator LED
- ⑧: USB suspended indicator LED
- ⑨: VIO power supply selection interface, supports power supply voltage of 3.3V/2.5V/1.8V, etc.
- ⑩: VDD5 and VDD33 power input selection pins of the main control chip CH346C
- ⑪: U1-3.3V voltage converter chip converts the VBUS of USB interface to 3.3V. The main control chip can choose to use the 5V power supply of VBUS or the 3.3V power supply converted by this LDO

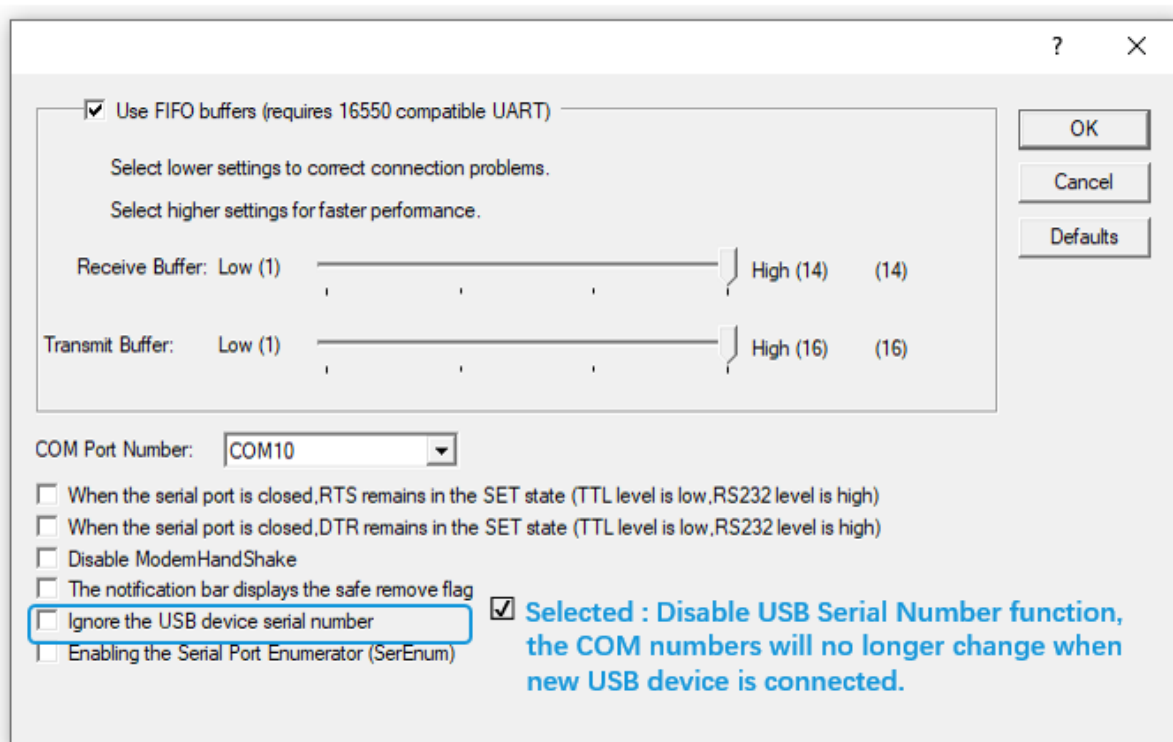
⑫: P1- USB interface, connects to USB host via USB cable

3. USB Serial Number Instruction

CH346 integrates USB Serial Number, this function can assign fixed COM numbers for each device according to different serial number in Windows and other systems, it can achieve the effect of keeping COM numbers fixed when the same device is connected to different USB ports, and assign different COM numbers to multiple devices due to different serial numbers when using them.

During the factory testing phase, in order to improve efficiency, you can disable this feature by ☒ checking "Ignore the USB device serial number" to ensure that the COM numbers of the same computers do not accumulate as the new device is connected. This method is only supported in VCP vendor driver mode.

Setting method: Device Manager -- Ports (COM&LPT) -- Right click USB-Enhanced-SERIAL-A/B CH346 - - Properties -- Port Settings – Advanced:



4. Downloads

No.	Resources		File Name(Click to link)
1	Datasheet		CH346DS1.PDF
2	Serial Port Drivers	Windows VCP One-Key installation driver	CH343SER.EXE
3		Windows VCP vendor driver	CH343SER.ZIP
4		Windows CDC One-Key installation driver	CH343CDC.EXE

5		Windows CDC driver	<u>CH343CDC.ZIP</u>
6		Android driver-free library and demo	<u>CH341SER_ANDROID.ZIP</u>
7		macOS VCP vendor driver	<u>CH341SER_MAC.ZIP</u>
8		Linux VCP vendor driver	Please send email to tech@wch.cn
9	Drivers	Windows vendor One-Key installation driver	<u>CH346DRV.EXE</u>
10		Windows vendor driver	<u>CH346DRV.ZIP</u>
11		Linux vendor driver, library and application	<u>CH341PAR_LINUX.ZIP</u>
12		Android driver-free library and demo	<u>CH341PAR_ANDROID.ZIP</u>
13		macOS vendor driver, library and application	<u>CH341PAR_MAC.ZIP</u>
14	Tools	USB configuration tool	<u>CH34xSerCfg.ZIP</u>
15		Serial port debug tool	<u>COMTransmit.ZIP</u>
16		Serial port number management tool	<u>ComPortManager.ZIP</u>
17		Parallel FIFO and SPI demo, FPGA and MCU operation routines.	<u>CH346EVT.ZIP</u>

Note: CH346 chip's serial interface needs to be used with a serial driver, and the parallel FIFO and SPI interfaces need to be used with a dedicated vendor driver. The CH346's serial port support uses the system's integrated CDC serial port driver or the VCP vendor driver. VCP vendor driver is more complete, supporting full-featured serial port, hardware flow control, GPIO, USB parameter configuration and other functions, supporting continuous and stable transmission at high baud rate. It is recommended to prioritize the use of VCP driver.

For more USB to serial ports chip selection, please refer to: <https://special.wch.cn/en/produce>