

CH9111 Evaluation Board Reference

Version: 1

<https://wch-ic.com>

1. Overview

This evaluation board is used to demonstrate the functions of the USB2.0 to high-speed UART/SPI interface chip CH9111L, which is TTL level. It can be used to test the full serial port function of the CH9111L as well as the 14-channel GPIO function (Working Mode 0)/7-channel GPIO function (Working Mode 1) and the 4-wire SPI interface function of the CH9111L. It also provides transmit/ receive indicators to indicate the serial port communication status. The TTL serial port and SPI interface are led out by pin headers.

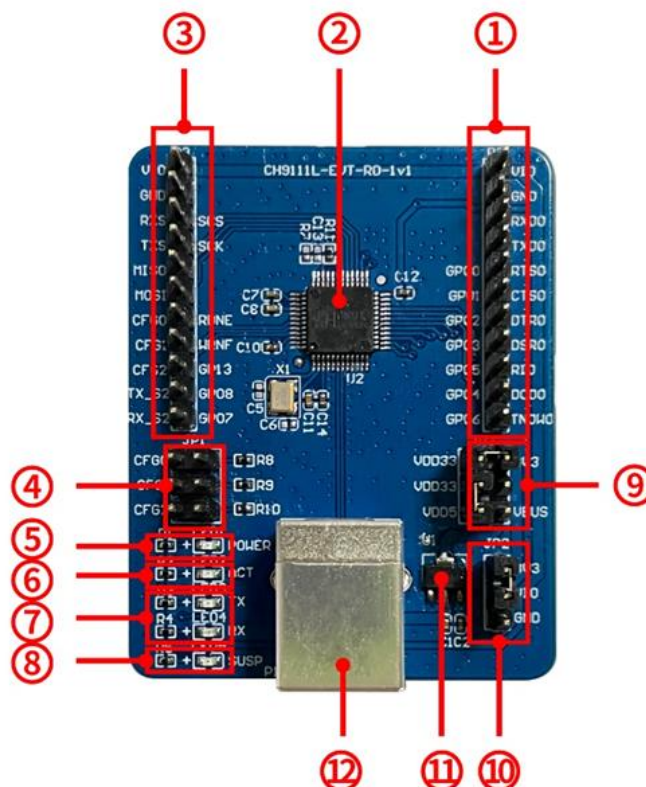
CH9111L has a built-in EEPROM, the parameters of the chip can be configured through the dedicated configuration software CH34xSerCfg.exe, such as VID, PID, vendor information and product information strings.

2. Evaluation Board Hardware

2.1. CH9111L High-Speed USB to UART & SPI

Refer to CH9111SCH.pdf document for evaluation board design.

The picture of the evaluation board is shown below:



Function description of each unit:

1: TTL UART, let out by pin header

2: Main control chip CH9111L

3: 4-wire SPI synchronous serial port, SPI control signal lines, UART transmit/receive indicator pins, and GPIO pins

4: Functional configuration pins(CFG0/1/2), When CFG0 is shorted to JP1-2, the serial port automatically enables the hardware flow control function; When CFG1 is suspended, working mode 0 is selected; when CFG1 is shorted to JP1-4, the working mode 1 is selected, and the mode descriptions are as follows.

Working Mode	CFG1 Pin Status	Chip Function	Default Product ID
Working Mode 0	Suspended or high level	USB to high speed single serial port, RX_S and TX_S are serial port transmit/receive data status output pins.	55E9H
Working Mode 1	Pull-down low level	USB to high speed serial port + USB to 4-wire SPI synchronous serial interface, RX_S2 and TX_S2 are serial port transmit and receive data status output pins.	55EAH

5: VIO power indicator LED

6: ACT pin indicator LED, indicates USB configuration completion status

7: UART transmit/receive indicator LED

8: USB suspended indicator LED

9: Chip power supply selection interface, VDD5 is shorted to VBUS when 5V power supply is selected, and VDD5 and VCC33 are shorted to 3V3 when 3.3V power supply is selected.

10: VIO power supply selection interface, the UART IO voltage is 3.3V when VIO is shorted to V3

11: U1-3.3V voltage conversion chip, converts VBUS of USB interface to 3.3V for the main control chip power supply, it can also be designed to use an external 3.3V power supply directly to power CH9111L and serial port peripherals

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

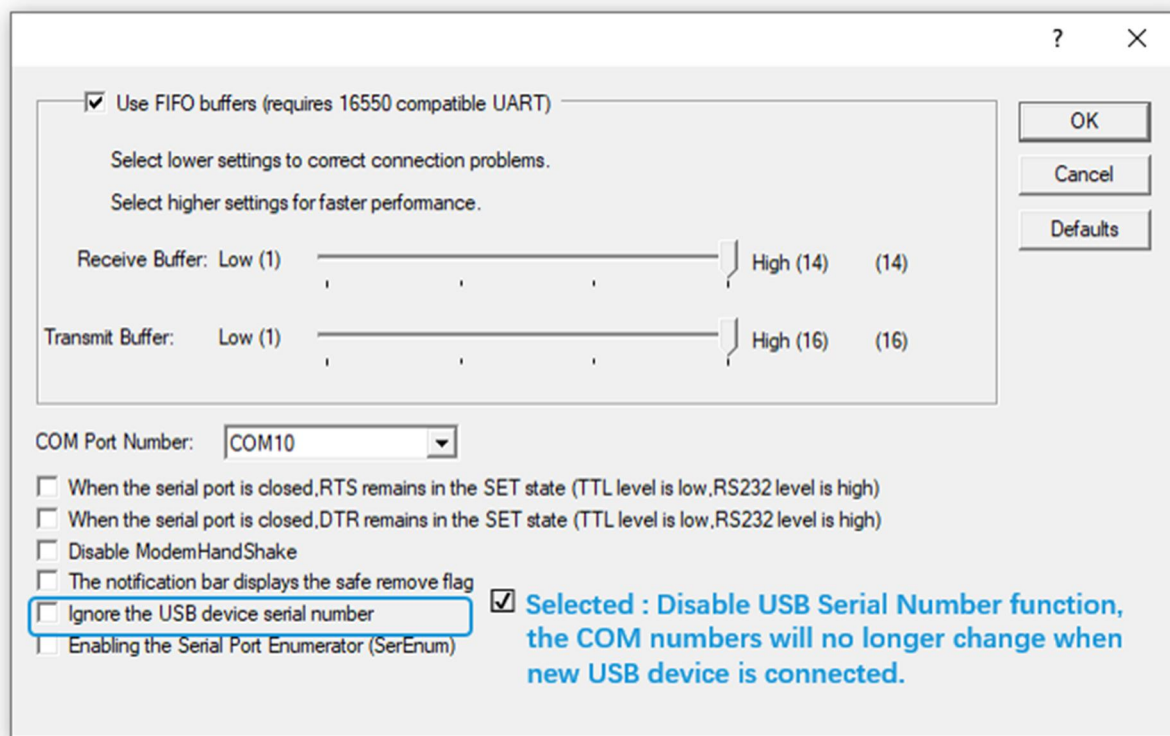
3. USB Serial Number instruction

CH9111 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 CH9111 -- Properties -- Port Settings -- Advanced:



4. Downloads

No.	Resources		File Name(Click to link)
1	Datasheet		CH9111DS1.PDF
2	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	CH343CDC.ZIP
6		Android driver-free library and demo	CH341SER_ANDROID.ZIP
7		macOS VCP vendor driver	CH341SER_MAC.ZIP
8		Linux driver	Please send email to tech@wch.cn
9		USB configuration tool	CH34xSerCfg.ZIP
10	Tools	Serial port debug tool	COMTransmit.ZIP
11		Serial port number batch management tool	ComPortManager.ZIP

Note: CH9111 supports both CDC serial port drivers of system integrated and VCP vendor drivers. VCP vendor driver has more complete functions, supports full- function serial ports, hardware flow control, GPIO, USB parameter configuration, supports continuous and stable transmission at high baud rates. VCP driver is

preferred.

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