USB2.0 to Octal Serial ports chip CH348 Evaluation Board Reference

1. Overview

These evaluation boards are used to demonstrate the functions of the USB2.0 high speed to octal serial ports chip CH348, including CH348Q and CH348L. These evaluation boards include TTL, RS232, RS485 and RS422 levels, which can be used to test the serial port function of CH348, as well as the 48 -channel GPIO function of CH348L and the 12-channel GPIO function of CH348Q, and provide transceiver indicators to indicate the serial port communication status. The I/O of the CH348L chip supports independent power supply, and the TTL level evaluation board supports power supply voltages such as 3.3V, 2.5V ,1.8V, etc. The TTL serial ports are led out by pin headers, the RS232 serial ports are led out by DB9 connectors, and the RS485 and RS422 serial ports are led out by screw terminals.

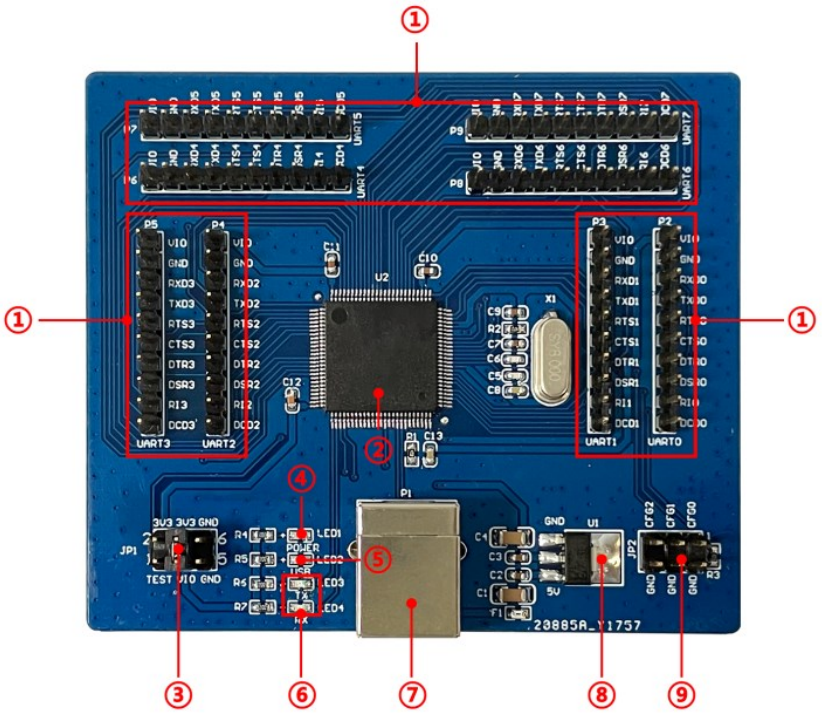
CH348 has a built-in EEPROM, the parameters of the chip can be configured through the dedicated configuration software CH34xSerCfg.exe, such as VID, PID, vendor information and product information string.

2. Evaluation Board Hardware

2.1. CH348L to 8-channel TTL UART

Refer to CH348SCH.pdf document for evaluation board design.

The picture of the evaluation board is shown below:



Function description of each unit:

1: TTL UART 0/1/2/3/4/5/6/7, let out by pin headers

2: Main control chip CH348L

3: JP1-serial port I/O power supply selection interface
3.3V serial port voltage: short-circuit JP1-3V3 and JP1-VIO;
Other serial port voltages: external power supply to VIO required, power supply range: 1.8V-3.3V
Note: JP1-3V3 is the output of the on-board 3.3V voltage conversion chip

4: LED1-VIO power indicator LED, indicates whether VIO is connected to power

5: LED2-ACT pin indicator LED, indicates USB configuration completion status

6: LED3/LED4 UART transmit/receive indicator LED, any UART with data communication will indicate

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

8: 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 CH348L and serial port peripherals.

9: JP2-DTRx/TNOWx/GPIOx mode selection for multiplexed function pins, mode description are as follows:

Mode	Enable Method
DTR	CFG0 connects to GND
TNOW	CFG0 suspended or connected high level
GPIO	by application

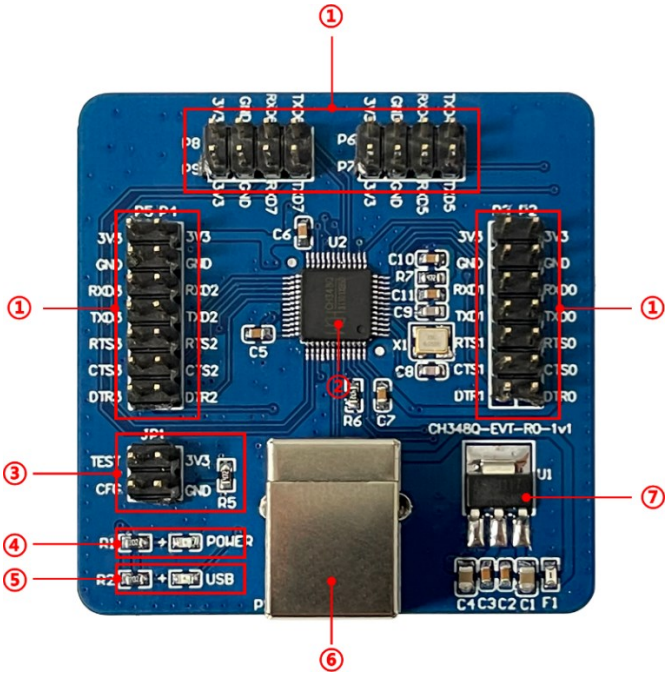
GPIO pins correspondence:

DTR Mode	TNOW Mode	GPIO Mode
DTR0	TNOW0	GPIO8
DTR1	TNOW1	GPIO9
DTR2	TNOW2	GPIO10
DTR3	TNOW3	GPIO11
DTR4	TNOW4	GPIO20
DTR5	TNOW5	GPIO21
DTR6	TNOW6	GPIO22
DTR7	TNOW7	GPIO23

2.2. CH348Q to 8-channel TTL UART

Refer to CH348SCH.PDF document for evaluation board design.

The picture of the evaluation board is shown below:



Function description of each unit:

1: TTL UART 0/1/2/3/4/5/6/7, let out by pin headers

2: Main control chip CH348Q

3: JP1-provides 3.3V power output.
Note：JP1-3V3 is the output of the on-board 3.3V voltage conversion chip

4: POWER-VCC power indicator LED, indicates whether power is connected

5: USB-ACT pin indicator LED, indicates USB configuration completion status

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

7: 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 CH348Q and serial port peripherals

GPIO pins correspondence:

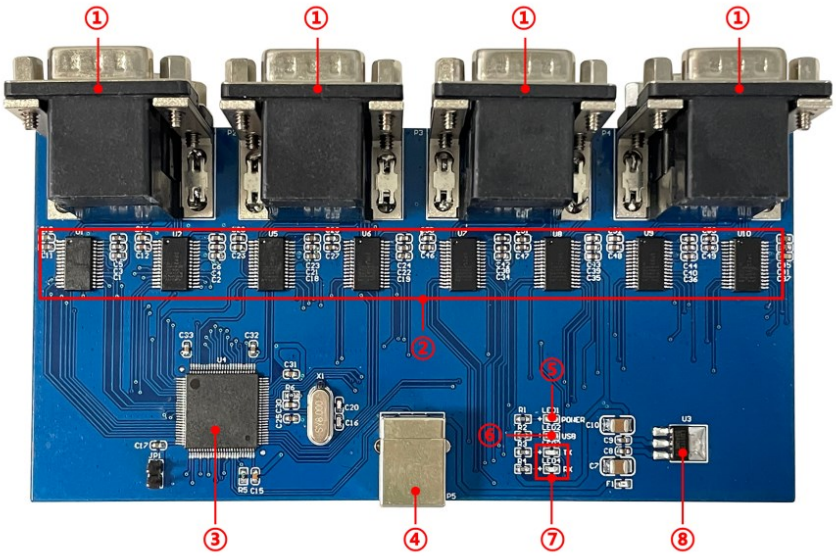
MODEM Mode	GPIO Mode
CTS0	GPIO0

RTS0	GPIO1
CTS1	GPIO2
RTS1	GPIO3
CTS2	GPIO4
RTS2	GPIO5
CTS3	GPIO6
RTS3	GPIO7
TNOW0	GPIO8
TNOW1	GPIO9
TNOW2	GPIO10
TNOW3	GPIO11

2.3. CH348L to 8-channel RS232 UART

Refer to CH348SCH-RS232.pdf document for evaluation board design.

The picture of the evaluation board is shown below:



Function description of each unit:

1: RS232 UART 0/1/2/3/4/5/6/7, let out by DB9 connectors

2: RS232 level conversion chip

3: U4-Main control chip CH348L

4: P5-USB interface, connects to USB host via USB cable

5: LED1-VIO power indicator LED, indicates whether VIO is connected to power

6: LED2-ACT pin indicator LED, indicates USB configuration completion status

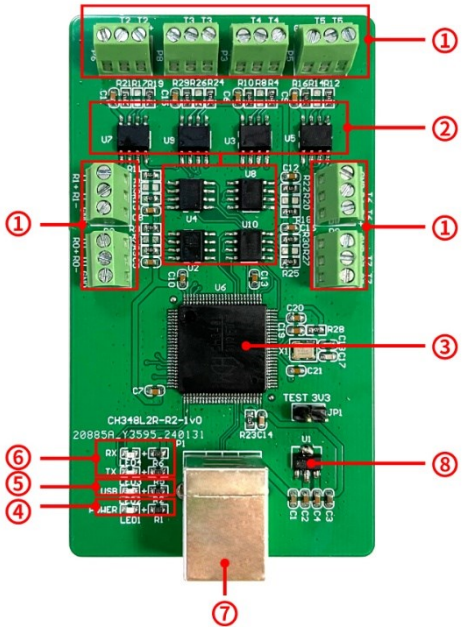
7: LED3/LED4 UART transmit/receive indicator LED, any UART with data communication will indicate

8: U3-3.3V 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 CH348L and serial port peripherals

2.4. CH348L to 8-channel RS485 UART

Refer to CH348SCH-RS485.pdf document for evaluation board design.

The picture of the evaluation board is shown below:



Function description of each unit:

1: RS485 UART 0/1/2/3/4/5/6/7, led out by screw terminals

2: RS485 level conversion chip

3: U6- Main control chip CH348L

4: LED1-VCC power indicator LED, indicates whether VCC is connected to power

5: LED2-ACT pin indicator LED, indicates USB configuration completion status

6: LED3/LED4- UART transmit/receive indicator LED, any UART with data communication will indicate

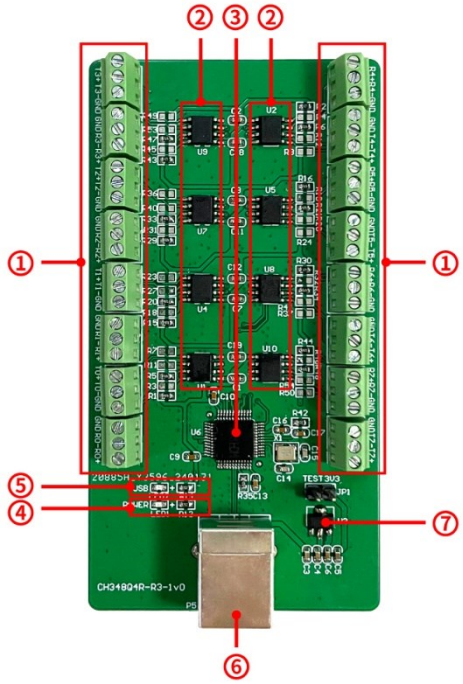
7: P1-USB interface, connects to USB host via USB cable

8: 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 CH348L and serial port peripherals

2.5. CH348Q to 8-channel RS422 UART

Refer to CH348SCH-RS422.pdf document for evaluation board design.

The picture of the evaluation board is shown below:



Function description of each unit:

1: RS422 UART 0/1/2/3/4/5/6/7, led out by screw terminals

2: RS422 level conversion chip

3: U6- Main control chip CH348Q

4: LED1-VCC power indicator LED, indicates whether VCC is connected to power

5: LED2-ACT pin indicator LED, indicates USB configuration completion status

6: P5-USB interface, connects to USB host via USB cable

7: U3-3.3V 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 CH348Q and serial port peripherals

3. Downloads

No.	Resources		File Name(Click to link)
1	Datasheet		CH348DS1.PDF
2	Drivers	Windows One-Key installation driver	USBMSER.exe
3		Windows driver	USBMSER.ZIP
4		Linux driver	CH9344SER_LINUX.ZIP
5		Android driver-free lib and demo	USBMSER_ANDROID.ZIP
6		macOS driver-free library	Search and download WCHSerialPort in App Store
7	Tools	USB configuration tool	CH34xSerCfg.ZIP
8		Serial port debug tool	COMTransmit.ZIP
9		Serial port number batch management tool	ComPortManager.ZIP

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