武汉芯源半导体有限公司
WUHAN XINYUAN SEMICONDUCTOR CO., LTD

# CW32L083VxTx StartKit User Manual

Rev 1.0

www.whxy.com

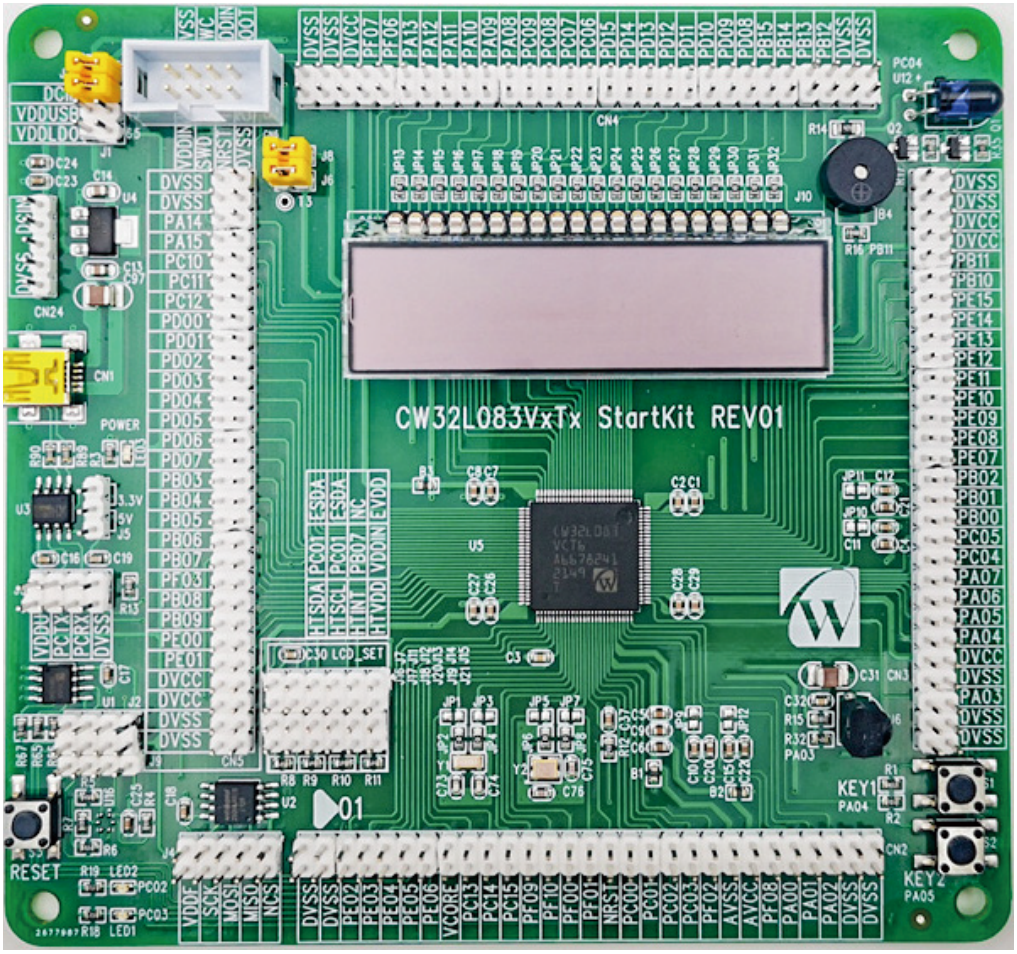
# Introduction

The CW32L083VxTx StartKit evaluation board provides users with an economical and flexible way to build system prototypes using the CW32L083VxTx chip. All aspects of performance, power consumption, and functionality can be quickly verified.

The CW32L083VxTx StartKit evaluation board needs to be used with the CW-DAPLINK debugger.

The CW32L083VxTx StartKit evaluation board comes with the CW32L083 StartKit software package and the CW32L083-StdPeriph-Lib firmware library and routines.

The CW32L083VxTx StartKit evaluation board is shown in the following figure:



# Contents

# 1 Features

- CW32L083VxTx microcontroller (ARM® Cortex®-M0+ up to 64MHz), LQFP100 package, 256Kbytes FLASH, 24Kbytes RAM
- Three LEDs :
  - Power indicator (LED3), User indicator (LED1, LED2)
- Three switches:
  - Reset switch (S3), User switch (S1, S2)
- 4x16 segment code LCD display: 8 bit 8 type
- USB to serial port chip (CH340N)
- FLASH chip (W25Q64JVSSIQ)
- EEPROM chip (CW24C02AD)
- Buzzer Circuit
- Infrared transceiver circuit
- On-board interfaces:
  - Mini USB interface (serial communication, USB powered)
  - Downloader debug interface
  - All GPIO ports are pin-out via pin header
- Multiple power supply methods: USB VBUS power supply, 3.3V power supply (LD1117AS33TR), external 1.65V-5.5V power supply
- The CW32L083-StdPeriph-Lib package provides a comprehensive set of free firmware libraries and routines
- Support for multiple IDEs, IAR ™， Keil®

# 2 Ordering Information

To order the CW32L083VxTx StartKit evaluation board, please refer to the table below. For more information, refer to the CW32 series MCU datasheet and User Manuals.

Table 2-1 Ordering Information

| Evaluation Board Code | Microcontroller Model |
|---|---|
| CW32L083VxTx StartKit | CW32L083VxTx |

# 3 Development Environment

## 3.1 System Requirements

Windows® OS (7,8,10), CW-DAPLINK debugger

*Note: Windows® OS 7 and Windows® OS 8 require the CW-DAPLINK driver to be installed.*

## 3.2 Integrated Development Environment

- EWARM v7.70 or higher
  - 30-day evaluation version
  - 32-Kb upper limit Quick Start version (ARM® Cortex®-M0 limited to 16-Kb)
- MDK-ARM v5.17 or higher
  - MDK-Lite (32-Kb code size limit)

*Note: Only Windows® is supported*

## 3.3 Demo Software

The demo software is included in the CW32L083 StartKit package that corresponds to the on-board microcontroller and is pre-installed in the CW32 flash memory for demonstrating device peripherals in standalone mode. The demo software source code and related documentation can be downloaded from the website (*www.whxy.com*).

# 4 Special Conventions

The conventions for ON and OFF settings in this document are shown in the following table:

Table 4-1 ON/OFF conventions

| Conventions | Definitions |
|---|---|
| Jumper Jx ON | Jumper cap connected |
| Jumper Jx OFF | Jumper cap not connected |
| Jumper Jx [1-2] | Jumper caps connect Pin1 and Pin2 |
| Resistor JPx ON | Solder 0Ω resistor |
| Resistor JPx OFF | Unsoldered 0Ω resistor |

# 5 Quick Start

The CW32L083VxTx StartKit evaluation board is a low-cost development kit for quickly evaluating the performance and functionality of the CW32L083 family of microcontrollers in the LQFP100 package. Before installing and using the product, please accept the license agreement for the evaluation product from the website.

## 5.1 Getting Started Guide

Follow the steps below to configure the CW32L083VxTx StartKit evaluation board:

1. Confirm the location of the jumper caps on the evaluation board (See *Table 5-1 Jumper Configuration*);
2. Connect the CW-DAPLINK debugger, confirm that the host-side driver has been properly installed, and connect the debug interface cable to the evaluation board properly;
3. Powering the evaluation board by connecting to the evaluation board USB connector CN1 using a USB cable (Type-A to Mini USB);
4. Red LED3 is lit (power indicator) and green LED1 and LED2 are flashing alternately;
5. Press the S1 button to observe LED1 flashing and LED2 going off;
6. Press the S2 button to observe LED2 flashing and LED1 going off;
7. The CW32L083 StartKit demo software can be downloaded from the official website to help you quickly understand the CW32L083VxTx StartKit evaluation board features;
8. Develop your own programs based on the provided routines.

Table 5-1 Jumper Configuration

| Jumper | Definition | ON/OFF | Function |
|---|---|---|---|
| J1[5-6] | VDDLDO | ON | Powering the system with a VDDLDO step-down power supply |
| J23 | | ON | Shorting without system current measurement |

# 6 Hardware layout

The CW32L083VxTx StartKit evaluation board is based on the CW32 microcontroller design in the LQFP100 package. *Figure 6-1 Top-level device layout* shows the placement of the CW32 microcontroller chip with its peripherals (buttons, LEDs, FLASH, EEPROM, USB to serial port, LCD, buzzer, IR emitter and receiver, debugger interface). *Figure 6-2 CW32L083VxTx StartKit Mechanical Dimensions* shows the mechanical dimensions of the evaluation board.

## 6.1 PCB layout and mechanical dimensions

Figure 6-1 Top-level device layout

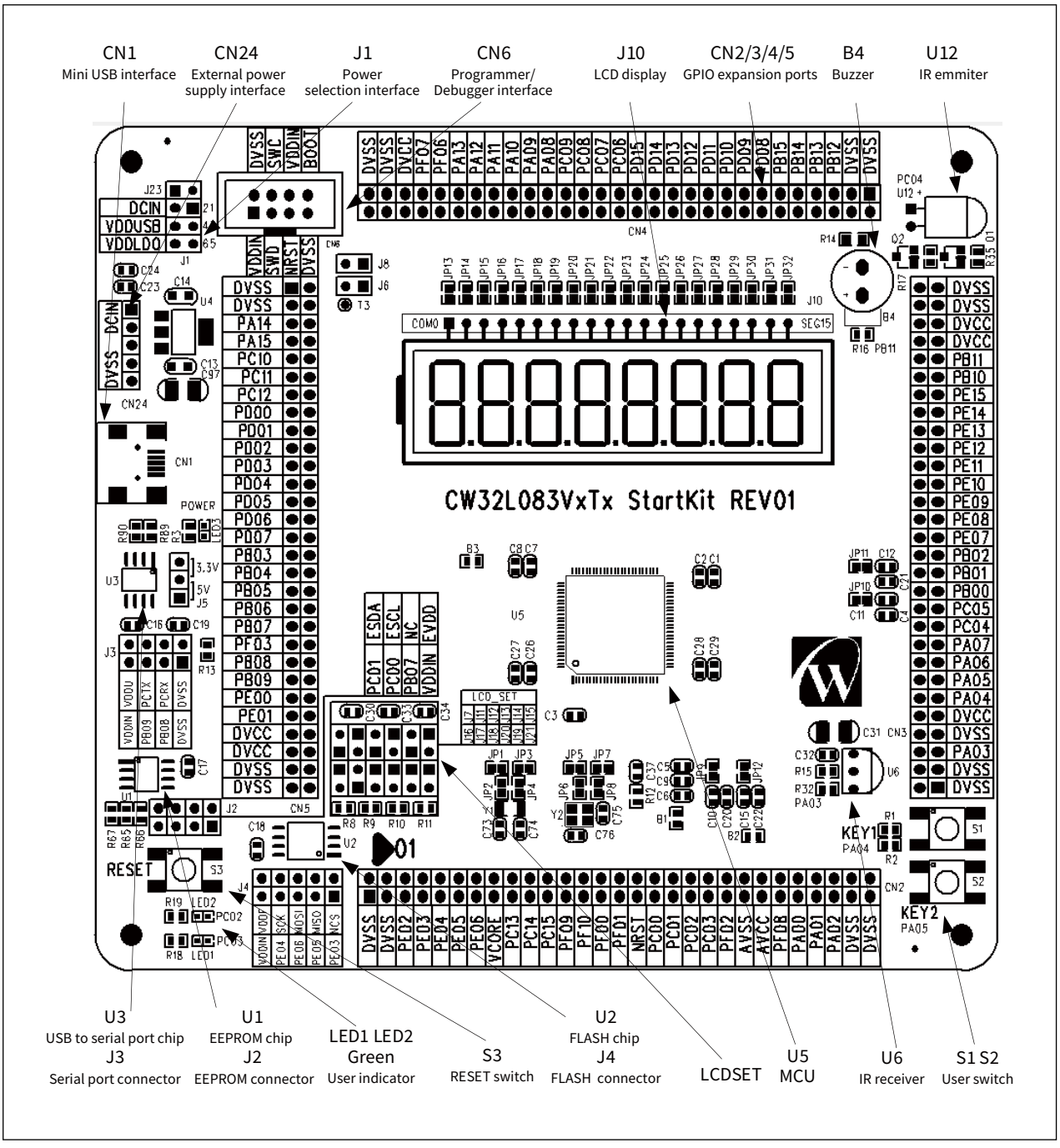
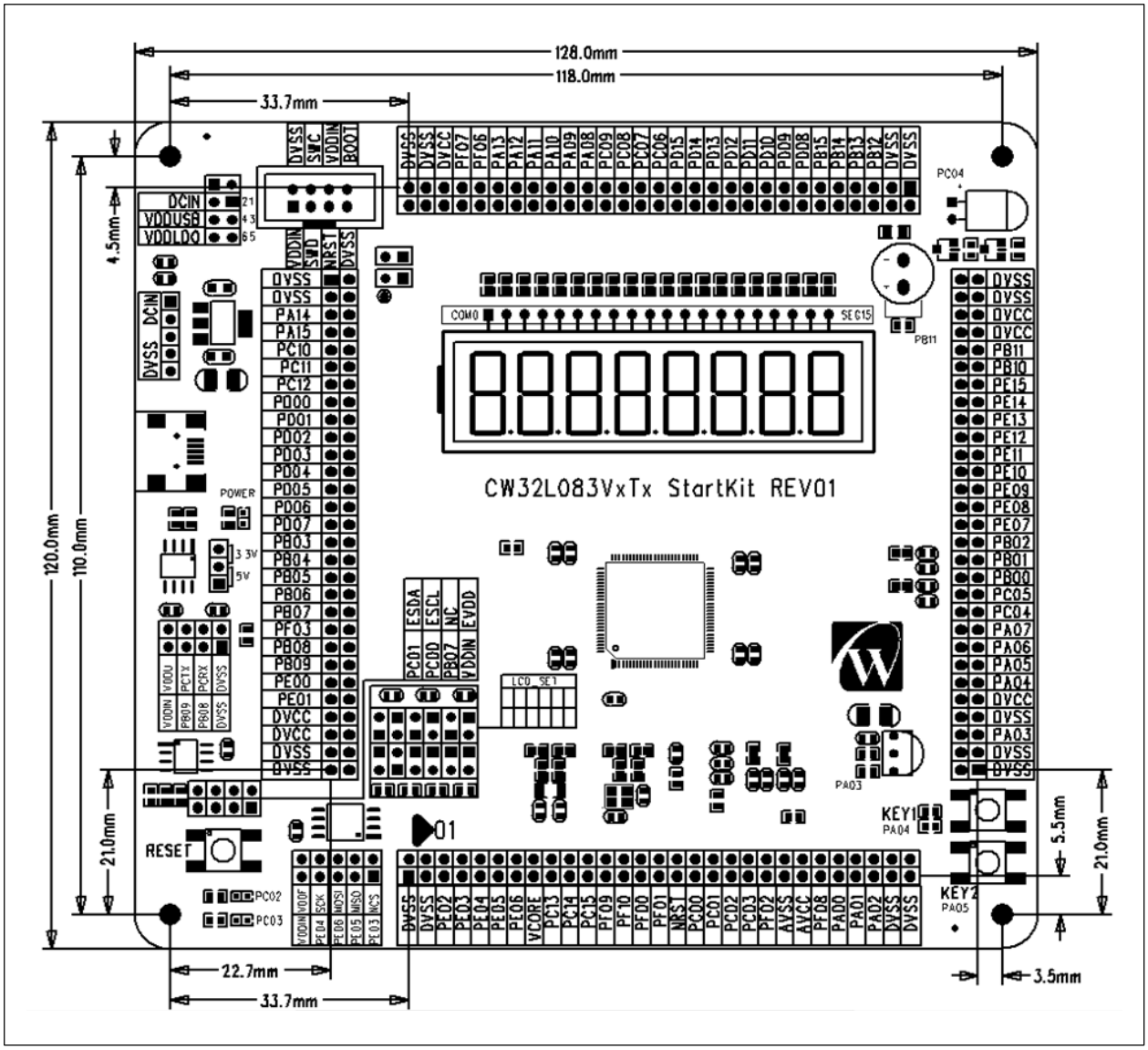


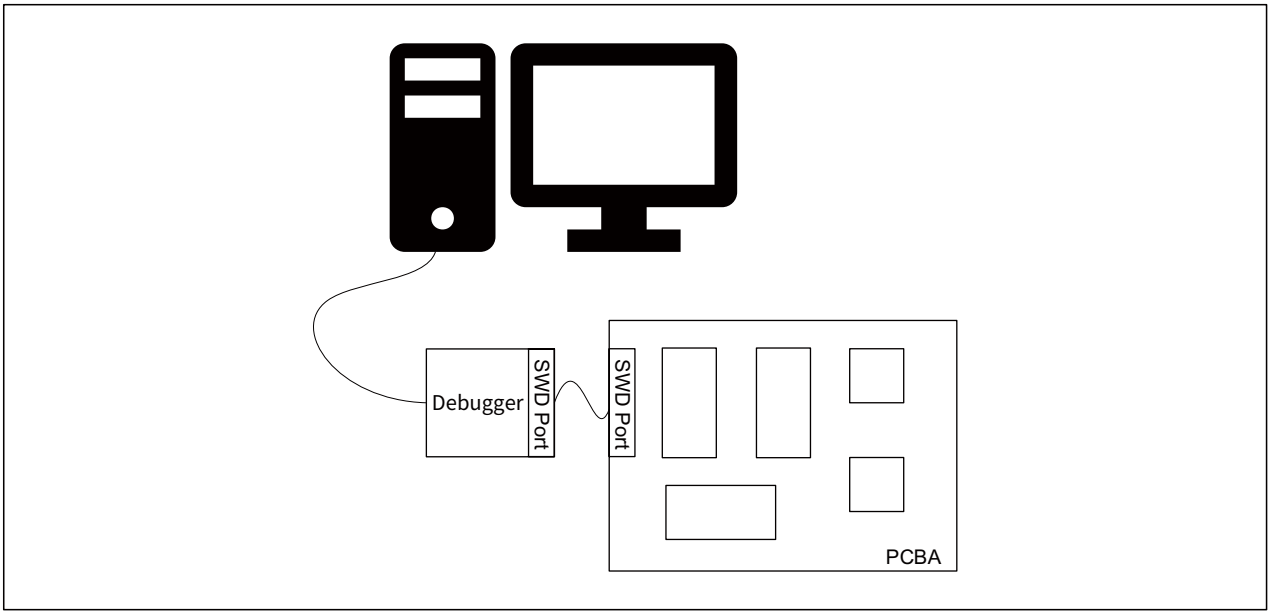
Figure 6-2 CW32L083VxTx StartKit Mechanical Dimensions



## 6.2 Use of debugger

Xinyuan Semiconductor provides the CW-DAPLINK debugger for users to use to connect the host computer to the debugger (Type-A to Type-C) using a USB cable. The evaluation board also supports the use of ST-LINK and J-LINK debuggers. The connection is shown in the following figure:

Figure 6-3 Typical connection




### CW-DAPLINK Driver

For Windows® 10 systems, CW-DAPLINK is driver free. For some Windows® 7 or Windows® 8 systems, the CW-DAPLINK virtual serial port is not available, so you need to add the driver manually.

The driver can be downloaded from the official website. Refer to the CW-DAPLINK User Manual for details of the driver installation procedure.

## 6.3 Power supply and power selection

Power can be provided via USB or from an external power supply: DCIN pin of CN24 pin header (1.65V to 5.5V). Microcontroller operating voltage can be selected via J1, which is configured as shown in the following table:

Table 6-1 J24 configuration

| Jumper connections | Operating Voltage |
|---|---|
| J1[1-2] | DCIN input voltage |
| J1[3-4] | 5V (USB input voltage) |
| J1[5-6] | 3.3V (LD1117AS33TR) |

## 6.4 Evaluation board functions

### LEDs

- Power indicator (LED3)

  Red LED3 is on to indicate that the evaluation board is powered on, if J23 is connected, the microcontroller is powered on at this time.

- User indicators (LED1, LED2)

  Green LED1 and LED2 connected to CW32L083VxTx I/O:

  - PC03 connected to LED1 anode
  - PC02 connected to LED2 anode

### Switches

- Reset switch (S3)

  This switch is connected to the NRST pin and is used to reset the CW32L083VxTx microcontroller.

- User switch (S1, S2)

  PA04 connected to S1, external pull-up resistor

  PA05 connected to S2, external pull-up resistor

### LCD and setup interface

The CW32L083VxTx StartKit evaluation board has a 4x16 segmented 8 bit 8 type LCD with decimal point for displaying various numeric and English characters. The LCD can be driven in 3 ways: internal drive mode, external capacitor drive mode and external resistor drive mode, the different modes require the following jumper settings:

Table 6-2 External capacitor drive mode LCD interface settings

| Capacitor mode | J7 | J11 | J12 | J13 | J14 | J15 |
|---|---|---|---|---|---|---|
| Statics | Open | Open | Short | Open | Short | Open |
| 1/2 BIAS | Short | Short | Short | Open | Open | Short |
| 1/3 BIAS | Short | Short | Open | Short | Open | Short |

Table 6-3 External resistor drive mode LCD interface settings

| Resistor mode | J16 | J17 | J18 | J20 | J19 | J21 |
|---|---|---|---|---|---|---|
| Statics | Open | Open | Short | Short | Open | Open |
| 1/2 BIAS | Short | Short | Short | Open | Open | Short |
| 1/3 BIAS | Short | Short | Open | Open | Short | Short |

### USB to serial port

The CW32L083VxTx StartKit evaluation board has the CH340N USB to serial chip soldered on it. Users can use the VDDU pin of the J3 pin header to configure the CH340N operating voltage ((depending on the VDDIN configuration of J1 when J3[7-8] is directly shorted), the serial transmit pins to I/O, and the serial receive pins to I/O. The following table describes how to connect J5 when the CH340N is operating at 3.3V or 5V (J3 VDDU is connected to a different power supply, and J3[7-8] is directly short-circuited depending on the VDDIN configuration of J1).

Table 6-4 J5 Connection Description

| CH340N Operating Voltage | J5 Connection |
|---|---|
| 3.3V | J5[2-3] |
| 5V | J5[1-2] |

Table 6-5 J3 Connection Description

| J3 | Connection Description |
|---|---|
| J3[1-2] | May not be connected |
| J3[3-4] | Port PB08 connects to serial port PCRXD |
| J3[5-6] | Port PB09 connects to serial port PCTXD |
| J3[7-8] | VDDIN connects to the VDDU power supply of the CH340N |

### FLASH chip and connection interface

The CW32L083VxTx StartKit evaluation board has the W25Q64JVSSIQ FLASH chip soldered on it, and the user can configure the W25Q64 operating voltage, SPI_NCS pin, SPI_MISO pin, SPI_MOSI pin, and SPI_SCK pin using the J4 pin header.

Table 6-6 J4 Connection Description

| J3 | Connection Description |
|---|---|
| J4[1-2] | Port PE03 connects to the SPI_CS of the FLASH SPI interface |
| J4[3-4] | Port PE05 connects to the SPI_MISO of the FLASH SPI interface |
| J4[5-6] | Port PE06 connects to the SPI_MOSI of the FLASH SPI interface |
| J4[7-8] | Port PE04 connects to the SPI_SCK of the FLASH SPI interface |
| J4[9-10] | VDDIN connects to the FVDD power supply of the FLASH |

### EEPROM chip and connection interface

The CW32L083VxTx StartKit evaluation board has the CW24C02AD EEPROM chip already soldered in it, and the user can configure the CW24C02AD operating voltage, SDA pins, and SCL pins using the J2 pin header.

Table 6-7 J2 Connection Description

| J3 | Connection Description |
|---|---|
| J2[1-2] | VDDIN connects to the EVDD power supply of the EEPROM |
| J2[3-4] | May not be connected |
| J2[5-6] | Port PC00 connects to the SCL of the EEPROM I2C interface |
| J2[7-8] | Port PC01 connects to the SDA of the EEPROM I2C interface |

### Buzzer

The CW32L083VxTx StartKit evaluation board has a passive buzzer that can be used for simple tone control.

### IR emitter and receiver

The CW32L083VxTx StartKit evaluation board has IR emitter and IR receiver and can be used to demonstrate the IR modulated transmit function of the board.

### Programmer Interface

The CW32L083VxTx StartKit evaluation board leads to the programmer interface, which allows users to connect the programmer to the CN6 programmer interface for offline programming.

### Extended Interface

The CW32L083VxTx StartKit evaluation board pins out the GPIO of the microcontroller to the pin header, the layout of which is shown in the following figure, and the pin functions are shown in the following table:

Figure 6-4 Expansion interface layout

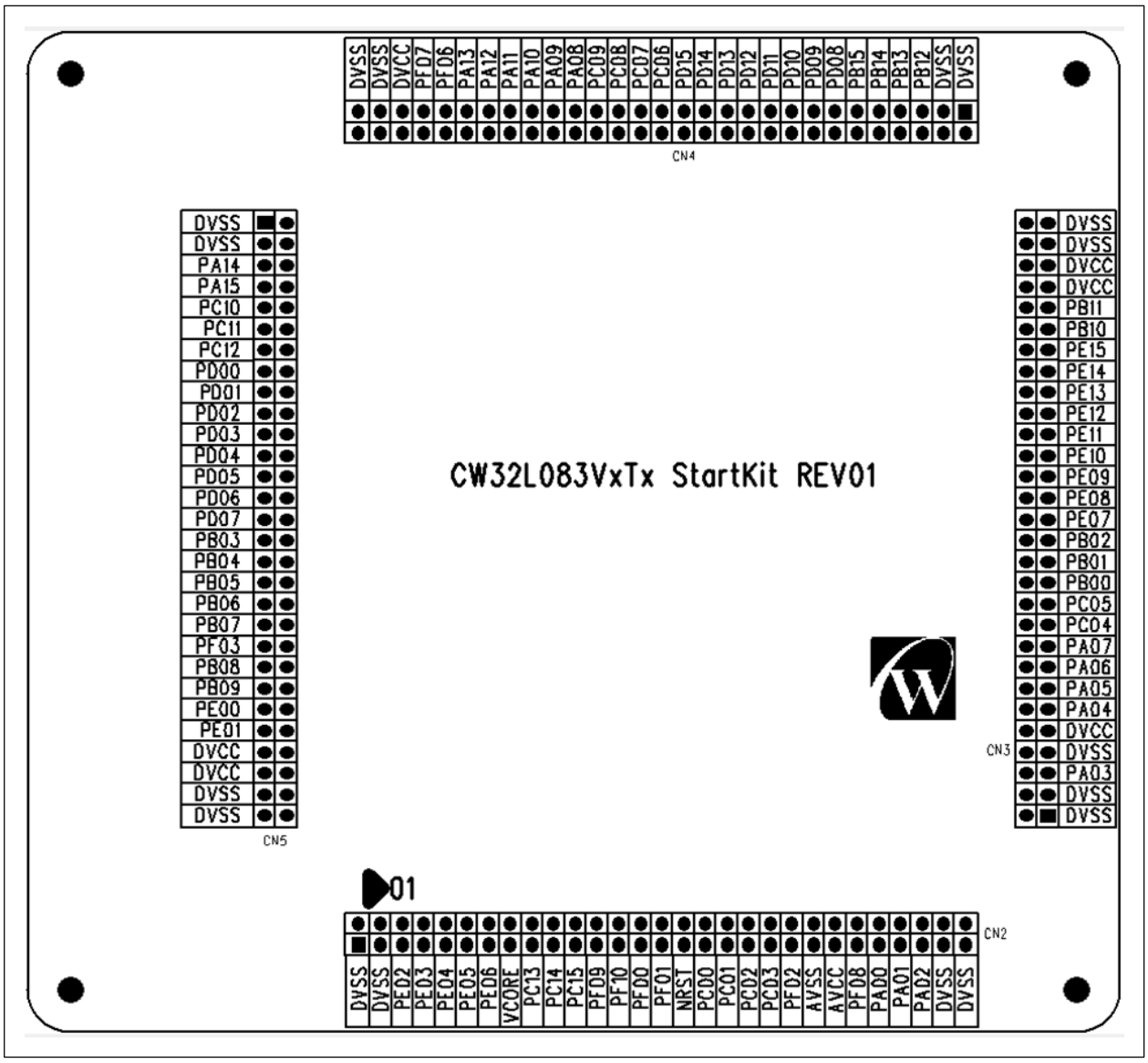


Table 6-8 Pin Function

| Connector | Pin No. | CW32 pin | Function |
|---|---|---|---|
| CN2 | 1-4 | DVSS | Digital power ground |
| | 5,6 | PE02 | LVD_OUT, IR_OUT, GTIM1_ETR, ATIM_BK |
| | 7,8 | PE03 | UART5_RXD, I2C2_SCL, SPI1_CS, GTIM1_CH4, ATIM_CH1B |
| | 9,10 | PE04 | UART5_TXD, I2C2_SDA, SPI1_SCK, GTIM1_CH3, ATIM_CH2B |
| | 11,12 | PE05 | UART5_CTS, UART6_RXD，SPI1_MISO, GTIM1_CH2，ATIM_CH3B |
| | 13,14 | PE06 | UART5_RTS, UART6_TXD, SPI1_MOSI, GTIM1_CH1, ATIM_ETR |
| | 15,16 | VCORE | Chip core power output |
| | 17,18 | PC13 | RTC_1Hz, UART1_CTS, RTC_OUT, BTIM_ETR, GTIM3_ETR, RTC_TAMP |
| | 19,20 | PC14 | GTIM4_CH4, UART1_RTS, UART4_TXD, SPI2_MISO, GTIM3_TOGP, GTIM3_CH1 |
| | 21,22 | PC15 | GTIM4_CH3, GTIM4_ETR, UART4_RXD, SPI2_MOSI, GTIM3_TOGN, GTIM3_CH2 |
| | 23,24 | PF09 | UART3_RXD, BTIM3_TOGP, RTC_OUT, GTIM1_CH1, HCLK_OUT |
| | 25,26 | PF10 | UART3_TXD, BTIM3_TOGN, HSIOSC_OUT, GTIM1_CH2, MCO_OUT |
| | 27,28 | PF00 | GTIM4_CH2, I2C1_SDA, BTIM1_TOGN, SPI2_SCK, GTIM2_TOGP, GTIM3_CH3 |
| | 29,30 | PF01 | GTIM4_CH1, I2C1_SCL, BTIM1_TOGP, SPI2_CS, GTIM2_TOGN, GTIM3_CH4 |
| | 31,32 | NRST | Device reset input |
| | 33,34 | PC00 | GTIM2_CH4, SPI1_CS, LPTIM_CH1, UART5_RXD, ATIM_CH1A, I2C2_SCL |
| | 35,36 | PC01 | GTIM2_CH3, SPI1_SCK, LPTIM_OUT, UART5_TXD, ATIM_CH2A, I2C2_SDA |
| | 37,38 | PC02 | GTIM2_CH2, SPI1_MISO, LPTIM_CH2, UART1_TXD, ATIM_CH3A |
| | 39.40 | PC03 | GTIM2_CH1, SPI1_MOSI, LPTIM_ETR, UART1_RXD, ATIM_BK |
| | 41,42 | PF02 | LVD_OUT, LSI_OUT, GTIM3_TOGP, MCO_OUT |
| | 43,44 | AVSS | Analog power ground |
| | 45,46 | AVCC | Analog power supply |
| | 47,48 | PF08 | PLL_OUT, PCLK_OUT, GTIM3_TOGN |
| | 49,50 | PA00 | UART3_CTS, UART6_CTS, RTC_TAMP, VC1_OUT, SPI2_MISO, GTIM2_CH1, GTIM2_ETR |
| | 51,52 | PA01 | UART3_RTS, UART6_RTS, I2C2_SCL, LVD_OUT, SPI2_MOSI, GTIM2_CH2, RTC_TAMP |

| Connector | Pin No. | CW32 pin | Function |
|---|---|---|---|
| CN2 | 53,54 | PA02 | UART3_TXD, UART6_TXD, I2C2_SDA, VC2_OUT, SPI2_SCK, GTIM2_CH3, AWT_ETR |
| | 55-58 | DVSS | Digital power ground |
| CN3 | 1-4 | DVSS | Digital power ground |
| | 5,6 | PA03 | UART3_RXD, UART6_RXD, GTIM2_CH2, PCLK_OUT, SPI2_CS, GTIM2_CH4, ATIM_CH3A |
| | 7,8 | DVSS | Digital power ground |
| | 9,10 | DVCC | Digital power supply |
| | 11,12 | PA04 | UART4_TXD, UART2_CTS, I2C2_SCL, HCLK_OUT, SPI1_CS, GTIM2_ETR, ATIM_CH2A |
| | 13,14 | PA05 | GTIM2_ETR, UART2_RTS, I2C2_SDA, BTIM2_TOGN, SPI1_SCK, GTIM2_CH1, ATIM_CH1A |
| | 15,16 | PA06 | GTIM3_CH1, UART2_TXD, VC1_OUT, BTIM2_TOGP, SPI1_MISO, GTIM1_CH1, ATIM_BK |
| | 17,18 | PA07 | GTIM4_CH1, UART2_RXD, VC2_OUT, BTIM1_TOGN, SPI1_MOSI, GTIM1_CH2, ATIM_CH1B |
| | 19,20 | PC04 | UART1_TXD, UART6_RXD, IR_OUT, LSI_OUT |
| | 21,22 | PC05 | UART1_RXD, UART6_TXD, MCO_OUT, LPTIM_ETR, LPTIM_OUT |
| | 23,24 | PB00 | UART5_RXD, UART1_CTS, I2C2_SCL, BTIM1_TOGP, HSIOSC_OUT, GTIM1_CH3, ATIM_CH2B |
| | 25,26 | PB01 | UART5_TXD, UART1_RTS, I2C2_SDA, GTIM4_TOGP, BTIM3_TOGN, GTIM1_CH4, ATIM_CH3B |
| | 27,28 | PB02 | UART2_CTS, UART1_TXD, LPTIM_OUT, GTIM4_TOGN, BTIM3_TOGP, GTIM1_ETR, ATIM_CH1A |
| | 29,30 | PE07 | UART2_RTS, LPTIM_CH1, GTIM1_CH4, GTIM4_ETR, BTIM_ETR, ATIM_CH2A |
| | 31,32 | PE08 | UART1_TXD, LPTIM_CH2, GTIM1_CH3, SPI1_CS, GTIM4_CH1, ATIM_CH3A |
| | 33,34 | PE09 | UART1_RXD, LPTIM_OUT, GTIM1_ETR, SPI1_SCK, GTIM3_CH1, ATIM_BK |
| | 35.36 | PE10 | UART4_TXD, LPTIM_ETR, GTIM1_CH2, SPI1_MISO, GTIM3_CH2, ATIM_ETR |
| | 37,38 | PE11 | UART4_RXD, UART1_RXD, GTIM1_CH1, SPI1_MOSI, GTIM3_CH3 |

| Connector | Pin No. | CW32 pin | Function |
|---|---|---|---|
| CN3 | 39.40 | PE12 | UART3_TXD, GTIM2_CH4, SPI2_CS, GTIM3_CH4, ATIM_CH1B |
| | 41,42 | PE13 | UART3_RXD, GTIM2_CH3, SPI2_SCK, GTIM4_CH2, ATIM_CH2B |
| | 43,44 | PE14 | UART2_TXD, GTIM2_CH2, SPI2_MISO, GTIM4_CH3, ATIM_CH3B |
| | 45,46 | PE15 | UART2_RXD, GTIM2_CH1, SPI2_MOSI, GTIM4_CH4, ATIM_BK |
| | 47,48 | PB10 | UART2_RTS, UART4_RXD, I2C1_SCL, I2C2_SCL, SPI2_SCK, GTIM2_CH3, ATIM_CH2A |
| | 49,50 | PB11 | GTIM4_ETR, UART4_TXD, I2C1_SDA, I2C2_SDA, BTIM_ETR, GTIM2_CH4, ATIM_CH3A |
| | 51-54 | DVCC | Digital power supply |
| | 55-58 | DVSS | Digital power ground |
| CN4 | 1-4 | DVSS | Digital power ground |
| | 5,6 | PB12 | GTIM2_TOGP, GTIM4_CH4, LSE_OUT, SPI2_CS, SPI1_CS, GTIM1_TOGP, ATIM_BK |
| | 7,8 | PB13 | GTIM2_TOGN, GTIM4_CH3, I2C2_SCL, SPI2_SCK, SPI1_SCK, GTIM1_TOGN, ATIM_CH1B |
| | 9,10 | PB14 | GTIM2_CH1, GTIM4_CH2, I2C2_SDA, SPI2_MISO, SPI1_MISO, RTC_OUT, ATIM_CH2B |
| | 11,12 | PB15 | GTIM2_CH2, GTIM4_CH1, BTIM2_TOGN, SPI2_MOSI, SPI1_MOSI, RTC_1Hz, ATIM_CH3B |
| | 13,14 | PD08 | GTIM2_CH3, LPTIM_OUT, UART1_TXD, SPI2_CS, GTIM1_CH1, ATIM_CH1A |
| | 15,16 | PD09 | GTIM2_CH4, LPTIM_CH2, UART1_RXD, SPI2_SCK, GTIM1_CH2, ATIM_CH2A |
| | 17,18 | PD10 | UART5_TXD, LPTIM_CH1, GTIM4_CH1, SPI2_MISO, GTIM1_CH3, ATIM_CH3A |
| | 19,20 | PD11 | UART5_RXD, LPTIM_ETR, GTIM4_CH2, SPI2_MOSI, GTIM1_CH4, ATIM_BK |
| | 21,22 | PD12 | UART5_CTS, UART4_RXD, GTIM4_CH3, SPI1_CS, BTIM3_TOGP, AWT_ETR |
| | 23,24 | PD13 | UART5_RTS, UART4_TXD, GTIM4_CH4, SPI1_SCK, BTIM3_TOGN |
| | 25,26 | PD14 | UART2_TXD, HCLK_OUT, GTIM2_ETR, SPI1_MISO |
| | 27,28 | PD15 | UART2_RXD, PCLK_OUT, BTIM_ETR, SPI1_MOSI |
| | 29,30 | PC06 | UART4_RXD, UART3_TXD, BTIM2_TOGP, GTIM2_CH4, ATIM_CH1B |
| | 31,32 | PC07 | UART4_TXD, UART3_RXD, BTIM2_TOGN, GTIM2_CH3, ATIM_CH2B |
| | 33,34 | PC08 | UART4_CTS, UART6_TXD, GTIM4_ETR, GTIM2_CH2, ATIM_CH3B |

| Connector | Pin No. | CW32 pin | Function |
|---|---|---|---|
| CN4 | 35,36 | PC09 | UART4_RTS, UART6_RXD, I2C1_SDA, GTIM2_CH1, ATIM_ETR |
| | 37,38 | PA08 | LPTIM_ETR, UART1_TXD, BTIM2_TOGP, MCO_OUT, LVD_OUT, GTIM3_ETR, ATIM_CH1A |
| | 39.40 | PA09 | UART3_TXD, UART1_RXD, I2C1_SCL, BTIM1_TOGN, SPI1_CS, GTIM3_CH1, ATIM_CH2A |
| | 41,42 | PA10 | UART3_RXD, UART1_CTS, I2C1_SDA, BTIM1_TOGP, SPI1_SCK, GTIM3_CH2, ATIM_CH3A |
| | 43,44 | PA11 | UART3_CTS, UART1_RTS, I2C2_SCL, VC1_OUT, SPI1_MISO, GTIM3_CH3, ATIM_GATE |
| | 45,46 | PA12 | UART3_RTS, BTIM_ETR, I2C2_SDA, VC2_OUT, SPI1_MOSI, GTIM3_CH4, ATIM_ETR |
| | 47,48 | PA13 | I2C1_SDA, UART1_RXD, UART2_TXD, I2C2_SCL, IR_OUT |
| | 49,50 | PF06 | UART6_CTS, I2C1_SCL, GTIM4_TOGP, UART2_CTS, I2C2_SCL, GTIM3_TOGP, BTIM3_TOGN |
| | 51,52 | PF07 | UART6_RTS, I2C1_SDA, GTIM4_TOGN, UART2_RTS, I2C2_SDA, GTIM3_TOGN, BTIM3_TOGP |
| | 53,54 | DVCC | Digital power supply |
| | 55-58 | DVSS | Digital power ground |
| CN5 | 1-4 | DVSS | Digital power ground |
| | 5,6 | PA14 | UART3_TXD, I2C1_SCL, UART1_TXD, UART2_RXD, I2C2_SDA |
| | 7,8 | PA15 | UART3_RXD, GTIM2_CH1, UART1_RXD, UART2_TXD, SPI1_CS, GTIM2_ETR, ATIM_CH1B |
| | 9,10 | PC10 | UART4_TXD, GTIM3_CH1, HCLK_OUT, BTIM1_TOGP, VC1_OUT, LPTIM_CH1, ATIM_CH2B |
| | 11,12 | PC11 | UART4_RXD, GTIM3_CH2, IR_OUT, BTIM1_TOGN, VC2_OUT, LPTIM_CH2, ATIM_CH3B |
| | 13,14 | PC12 | UART5_TXD, PCLK_OUT, LVD_OUT, UART6_RXD, PLL_OUT, HSIOSC_OUT |
| | 15,16 | PD00 | UART6_RXD, I2C2_SCL, AWT_ETR, SPI2_CS, MCO_OUT |
| | 17,18 | PD01 | UART6_TXD, I2C2_SDA, RTC_1Hz, SPI2_SCK, RTC_TAMP |
| | 19,20 | PD02 | UART5_RXD, GTIM4_CH1, BTIM_ETR, UART6_TXD, RTC_1Hz, GTIM3_ETR, ATIM_ETR |
| | 21,22 | PD03 | UART6_CTS, I2C2_SCL, VC1_OUT, SPI2_MISO, GTIM1_CH3, ATIM_BK |
| | 23,24 | PD04 | UART6_RTS, I2C2_SDA, VC2_OUT, SPI2_MOSI, GTIM1_CH4, ATIM_CH3A |

| Connector | Pin No. | CW32 pin | Function |
|---|---|---|---|
| CN5 | 25,26 | PD05 | UART4_TXD, GTIM2_CH1, UART3_TXD, LPTIM_CH1, BTIM2_TOGP, LSI_OUT, ATIM_CH2A |
| | 27,28 | PD06 | I2C1_SCL, GTIM2_CH4, UART3_RXD, LPTIM_CH2, BTIM2_TOGN, GTIM2_TOGP, ATIM_CH1A |
| | 29,30 | PD07 | I2C1_SDA, GTIM2_CH3, MCO_OUT, UART2_RXD, SPI1_CS, GTIM2_TOGN, ATIM_CH1B |
| | 31,32 | PB03 | UART3_RTS, GTIM2_CH2, UART4_CTS, UART2_TXD, SPI1_SCK, GTIM1_ETR, ATIM_CH2B |
| | 33,34 | PB04 | UART3_CTS, GTIM4_ETR, UART4_RTS, UART2_RXD, SPI1_MISO, GTIM1_CH1, ATIM_CH3B |
| | 35.36 | PB05 | UART4_RXD, GTIM3_CH4, LPTIM_CH1, UART2_RTS, SPI1_MOSI, GTIM1_CH2, ATIM_CH1A |
| | 37,38 | PB06 | UART6_TXD, GTIM3_CH3, LPTIM_ETR, I2C1_SCL, SPI2_MOSI, GTIM1_TOGP, ATIM_CH2A |
| | 39.40 | PB07 | UART6_RXD, GTIM3_CH2, LPTIM_CH2, I2C1_SDA, SPI2_MISO, GTIM1_TOGN, ATIM_CH3A |
| | 41,42 | PF03 | BOOT |
| | 43,44 | PB08 | I2C1_SCL, GTIM3_CH1, UART5_TXD, GTIM4_CH2, SPI2_SCK, GTIM1_CH3, ATIM_ETR |
| | 45,46 | PB09 | I2C1_SDA, GTIM4_CH1, UART5_RXD, IR_OUT, SPI2_CS, GTIM1_CH4, ATIM_BK |
| | 47,48 | PE00 | I2C2_SCL, GTIM4_CH2, LPTIM_ETR, PCLK_OUT, GTIM2_TOGP, GTIM1_CH1, GTIM4_TOGP |
| | 49,50 | PE01 | I2C2_SDA, GTIM4_CH3, LPTIM_OUT, HCLK_OUT, GTIM2_TOGN, GTIM1_CH2, GTIM4_TOGN |
| | 51-54 | DVCC | Digital power supply |
| | 55-58 | DVSS | Digital power ground |

# 7 Revision history

Table 7-1 Document revision history

| Date | Revision | Changes |
|---|---|---|
| May 28, 2023 | Rev 1.0 | Initial release. |
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