CH32V30x Evaluation Board Reference

Version: V1.6 http://wch.cn

1. Overview

This evaluation board is applied to the development of the CH32V30x chip. The IDE uses the MounRiver compiler, with the option of using the on-board or independent WCH-Link for emulation and download, and provides reference examples and demonstrations of chip resource-related applications.

2. Evaluation board hardware

Please refer to the CH32V307SCH.pdf document for the schematic of the evaluation board. CH32V307 Evaluation Board



Descriptions

1.Power switch	5.MCU I/O port	9.Download button	row pin
2. Voltage regulator chip	6.Power supply row pin	10.KEY	14.Master control MCU
3.USB interface	7.DUBUG interface	11.KEY and LED row pin	
4. USB interface	8.Reset button	12.Network port	

The above CH32V307 evaluation board comes with the following resources.

Motherboard - CH32V307EVT

- 1. Switch S1: Used to disconnect or connect external 5V power supply or USB power supply
- 2. Forward low dropout voltage regulator chip U1: used to realize the conversion of 5V voltage to 3.3V supply voltage available to the chip
- 3. USB interface P5, P15: USB communication interface PB6, PB7 of the main chip
- 4. USB interface P4, P14: USB communication interface PA11, PA12 of the main chip
- 5. MCU I/O ports P6, P7, P9: I/O pinout interface of the master control MCU

2 1 (01)

- 6. Power supply row pin P3: 5V, 3.3V, GND external power supply row pin
- 7. DEBUG interface P10: for downloading, emulation debugging
- 8. Button S3: Reset button for external manual reset of the master control MCU
- 9. Button S4: Download button, used to start download from BOOT
- 10. Key S2: Connects to the I/O port of the master MCU through the P1 row of pins for key control
- 11. KEY and LED row pin P1: P1 row pin connects to the I/O of the master control MCU to control LED and KEY
- 12. Network port: Network communication interface of the main chip
- 13. MCU power supply row pin P11: for master control MCU power supply selection
- 14. Master control MCU: CH32V307VCT6

CH32V307 Evaluation Board



Descriptions

1.Master control MCU	5.Reset button	9. Voltage regulator chip	13.USER button
2.SDI&UART interface	6.Power switch	10.Download button	14.WCH-Link LED
3.LED	7.USB2.0 full-speed interface	11.WCH-Link interface	15.Network port
4.WCH-Link MCU	8.USB2.0 high-speed interface	12.MCU I/O	16.ARDUINO

The CH32V307V evaluation board shown above comes with the following resources.

Motherboard - CH32V307EVT

- 1. Master control MCU: CH32V307VCT6
- 2. SDI & UART interface: for downloading, emulation debugging, need jumper to choose whether to use the on-board WCH-Link
- 3. LED: Connected to the I/O port of the master MCU through J3 pins for control
- 4. WCH-Link MCU: MCU that implements WCH-Link function
- 5. Button S1: Reset button for external manual reset of the master control MCU
- 6. Switch S3: Used to cut off or connect external 5V power supply or USB power supply
- 7. USB type-C interface P7: connect the main chip USB2.0 full-speed communication interface

- 8. USB interface P6: connect the main chip USB2.0 high-speed communication interface
- 9. Voltage regulator chip U1: used to realize the conversion of 5V voltage to 3.3V supply voltage available to the chip
- 10. Download interface J1: When J1 jumper is shorted, it can be used to achieve WCH-Link firmware update
- 11. WCH-Link interface: for connecting PC and WCH-Link function module
- 12. MCU I/O port: I/O pinout interface of the master MCU
- 13. USER button S2: Connect the I/O port of the master MCU through J3 pin for key control
- 14. WCH-Link indicator: including D1, D2 and D3 three LEDs, indicating the WCH-Link operation status
- 15. Network port: Network communication interface of the main chip
- 16. ARDUINO interface: convenient to connect the ARDUINO interface development board

CH32V307 Evaluation Board



Descriptions

- 1.Master control MCU
- 2. Screen interface
- 3. SD card holder
- 6.DEBUG interface 7.MCU I/O

5. User button

8.USB full-speed interface9.Power switch10.Network port

11.USB high-speed interface12.Download button13.Reset button

4. Camera interface

The CH32V307V-R3 EVT board comes with the following resources.

Motherboard - CH32V307V-R3

- 1. Master control MCU: CH32V307VCT6
- 2. Screen interface P3: realize MCU external SPI port display

- 3. SD card holder P7: connect SDIO interface, demonstrate the operation of TF card through SDIO interface
- 4. Camera interface P10: realize MCU external camera (DVP-8bits)
- 5. Button: User button
- 6. Debugging interface P2: for downloading, simulation debugging
- 7. MCU I/O ports P1, P2, P6, P10: I/O pinout interface of the master control MCU
- 8. USB full-speed interface P5, P9: to provide electrical power, connected to the main chip USB2.0 full-speed communication interface
- 9. Power switch S2: Used to cut off or connect external 5V power supply or USB power supply
- 10. Network port P4: network communication interface of the main chip, 100 Gigabit Fiber
- 11. USB high-speed interface P11: provide electrical power, connected to the main chip USB2.0 high-speed communication interface
- 12. Download button S8: used to start the download from BOOT
- 13. Reset button S1: for external manual reset of the master control MCU

CH32V303 Evaluation Board



Descriptions

MCU
 Boot mode configuration
 MCU I/O

4.USB interface5.Power switch6.LED

7.DEBUG interface 8.Reset button

The above CH32V303 evaluation board comes with the following resources.

Motherboard - CH32V303EVT

- 1. Master control MCU: CH32V303CBT6
- 2. Boot mode configuration P3: Select the boot mode when the chip is powered on by configuring BOOT0/1
- 3. MCU I/O port P1, P2: I/O pinout interface of the master control MCU
- 4. USB interface P6: USB communication interface PB6, PB7 of the main chip
- 5. Switch S2: Used to disconnect or connect external 5V power supply or USB power supply
- 6. LED: Connected to the main chip I/O port via pins for control

- 7. DEBUG interface: for downloading, simulation debugging
- 8. Button S1: Reset button for external manual reset of the master control MCU

CH32V303 Evaluation Board



Descriptions

1.Master control MCU	4.DEBUG interface	7.Voltage regulator chip	10.KEY and LED row pin
2.MCU I/O	5.MCU power supply row	8.Power switch	11.KEY
	pin		
3.Reset button	6.Power supply row pin	9.USB interface	12.Download button

The above CH32V303 evaluation board comes with the following resources.

- Motherboard CH32V303EVT
- 1. Master control MCU: CH32V303VCT6
- 2. MCU I/O ports P6, P7, P9: I/O pinout interface of the master control MCU
- 3. Button S3: Reset button for external manual reset of the master control MCU
- 4. DEBUG interface P10: for downloading, emulation debugging
- 5. MCU power pin P11: for main MCU power supply selection
- 6. Power supply pin P3: 5V, 3.3V, GND external power supply pin
- 7. Forward low dropout voltage regulator chip U1: used to realize the conversion of 5V voltage to 3.3V supply voltage available to the chip
- 8. Switch S1: Used to disconnect or connect external 5V power supply or USB power supply
- 9. USB interface P4, P14: USB communication interface PA11, PA12 of the main chip
- 10. KEY and LED row pin P1: P1 row pin connects to the I/O of the master control MCU to control LED and KEY
- 11. Key S2: Connects to the I/O port of the master MCU through the P1 row of pins for key control
- 12. Button S4: Download button, used to start download from BOOT

CH32V307 Evaluation Board



Descriptions

1.Master control MCU	4.DEBUG interface	7.USB interface	10.Download button
2.MCU I/O	5.Power switch	8.Network port	11.KEY
3.Power supply row pin	6.USB interface	9.KEY and LED row pin	12.Boot mode configuration
			13.Reset button

The above CH32V307 evaluation board comes with the following resources. Motherboard - CH32V307EVT

- 1. Master control MCU: CH32V303WCU6
- 2. MCU I/O port P6, P7: I/O pinout interface of the master control MCU
- 3. Power supply row pin: for the master control MCU power supply selection
- 4. DEBUG interface P10: for downloading, emulation debugging
- 5. Switch S1: Used to disconnect or connect external 5V power supply or USB power supply
- 6. USB interface P5, P15: USB communication interface PB6, PB7 of the main chip
- 7. USB interface P4, P14: USB communication interface PA11, PA12 of the main chip
- 8. Network port: Network communication interface of the main chip
- 9. KEY and LED row pin P1: P1 row pin connects to the IO of the master MCU to control LED and KEY
- 10. Button S4: Download button, used to start download from BOOT
- 11. Key S2: Connects to the I/O port of the master control MCU through the P1 row of pins for key control
- 12. Boot mode configuration: Select the boot mode when the chip is powered on by configuring BOOT0/1
- 13. Button S3: Reset button for external manual reset of the master control MCU

3. Software Development

3.1 EVT package directory structure



Description.

PUB folder: provides evaluation board manuals, evaluation board schematics.

EXAM folder: Provides software development drivers and corresponding examples for the CH32V307 controller, grouped by peripheral. Each type of peripheral folder contains one or more functional application routines folders.

3.2 IDE use -MounRiver

Download MounRiver_Studio, double click to install it, and you can use it after installation. (MounRiver_Studio instructions are available at the path: MounRiver\MounRiver_Studio MounRiver_Help.pdf and MounRiver ToolbarHelp.pdf)

3.2.1 Open project

- Open project:
- 1) Double-click project file directly with the suffix name .wvproj under the corresponding project path.
- 2) Click File in MounRiver IDE, click Load Project, select the .project file under the corresponding path, and click Confirm to apply it.

3.2.2 Compilation

MounRiver contains three compilation options, as shown in the following figure.

🔰 workspace - BKP/User/main.c - MounRiver Studio	
File Edit Project Run Flash Tools Window Help	
i 🕆 - 🗏 🐚 © i 🗗 i 🖬 i 🖬 - i 🖂 i 🗒 - 👪 ≪i 🗠 - 🛍	1 ● • 三车车版 : 個 • 個 • ◇ • • • • • ● •
Project Explorer 🛛 🕞 📮 🔽 🖓 🗖	ⓓ main.c ಔ 健 ch32v30x_rcc.h ⓓ ch32v30x_rcc.c
	15 */

Compile option 1 is Incremental Build, which compiles the modified parts of the selected project.

Compile option 2 is ReBuild, which performs a global compilation of the selected project. Compile option 3 is All Build, which performs global compilation for all projects.

V1.6

3.2.3 Download/Simulation

- Download
- 1) Debugger download

Connect to the hardware via WCH-Link (see WCH-Link instructions for details, path: MounRiver\MounRiver_Studio\WCH-Link instructions.pdf), click the Download button on the IDE, and select Download in the pop-up interface, as shown in the figure below.

🚺 ADC_DMA/User/main.c - MounRiver Studio

Project Explore		(C) COPYRIGHT *********
AN ADCUNIA	Operations 1 2 3	body. Microelectronics Co., Li 0
	Set WCH-Link Mode	
	Target Mode: WCH-LinkRV V Query Apply	1连续1024次转换数据。
	Memory Assign: V Query Apply	
	Target Choise MCU Type MCU Type: CH32V30x ✓ Program Address: 0x08000000 ✓ Choise Target File	
	Target File: obj\ADC_DMA.hex Browse	******
	Options	.on.
문 Ou 없 🗿 2	✓ 0000#19:25:42:529>> Query Success Set Configuration	kpoints 🕞
		upgrade firmware if neces . Already the latest vers
 debug.h TxBuf : u1 		

1 for querying the chip read protection status.

2 for setting the chip read protection and re-powering the configuration to take effect.

3 for lifting the chip read protection and re-powering the configuration to take effect.

2) WCHISPTool Download

The WCHISPTool tool is used to download the chip, supporting both USB and serial port. the USB pins are PA11 (DM), PA12 (DP) or PB6 (DM), PB7 (DP), and the serial port pins are PA9 (TX), PA10 (RX). The download process is.

- (1) BOOT0 to VCC and BOOT1 to ground, connected to PC via serial or USB.
- (2) Open the WCHISPTool tool, select the appropriate download method, choose to download the firmware, check the chip configuration and click download.
- (3) BOOT0 is grounded, re-powered and running the APP program.

The WCHISPTool tool interface is shown in the following figure.

			MCU series selection
	0		- 1.MCU Series Selection
nip Option 2		Download Record	
Chip Series CH32V30x ~ Chip N ownload Port USB ~ 3 Aut	Iodel CH32V307VCT6 → omatic Download When Device Connect	17:10:00:965>> Device: CH32V307VCT6 17:10:00:965>> Flash size: Z56Kbytes Device#0 UID:85-68-35-26-38-38-FE-C9, BTVER:02.60 17:10:02:425-3 开始解除设备个权强保护	• RISC-V MCUs
4.Device List, gener wwn.load File	al automatic recognition SPath 5.Choise Download File	17:10:02:511>> 成功: 17:10:02:885>> Device: CH32V307VCT6 17:10:02:885>> Flash size: 256Kbytes Device® UID:85-68-35-26-38-38-FE-C9, BTVER:02.60	• Cortex-M MCUs
Object File1 \CH32V307EVT_V1.9\CH32V Object File2 Object File3		17:10:06:677>> 待下载BN文件长度;7460 17:10:06:687>> (≢0=0)开始下载 17:10:06:709>> BTVFR0.2.60 17:10:06:709>> UID:85-68-3E-26-3B-38-FE-C9	• High-Speed MCUs
ownload Config		17:10:06:790> 線徐中 17:10:06:828> 完成 17:10:06:837> 编程中	+ BLE MCUs
Chip Config 6.Download Configuration	115200	17:10:06:916>> 完成	DEE moos
Chin Memory Allocation	RAMX 64KB + ROM 256KB	17:10:06:917>> 夜燈中 17:10:07:056>> 完成	
Stop-Mode RST	Disable	17:10:07:061>> 成功!	
Standby-Mode RST	Disable	17:10:07:065>> <<<< 本次用时:0.377s	• E8051 USB MCUs
Soft-Ctrl IWDG	Enable	17:11:17:226>> Device: CH32V307VCT6	
RRP	Enable	17:11:17:22/>> Flash size: 250Kbytes Device#0.100-95-68-25-26-28-29-59-69-80/02-60	
Clear CodeFlash	Disable	Devicer of orbitos-ob-ob-ob-ob-re-ics, biverkite.to	
Perform a soft reset After Download	Enable		[Nore information]
User data DATA0	0x00		
User data DATA1	0x00		
Write protection control bit WRP0	0xFF		WGH MGU selection:
Write protection control bit WRP1	0xFF 🚽		http://wch.cn/search?t=all&q=MCU+
			WCH Chip Manual:
			https://wch.cn/search?t=all&q=brochur
ogress:			
8.Download	7:Cancel code protection		MCU IDE MRS download:
			A 10 11 1 1 1 1 1 1

Simulation

Open MounRiver Studio software for debugging configuration

* ■ @		◎ ▼ ◎ ▼ ◎ ◎ ◎ ◎ ◎ ○ ◎ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○	Quick Acce
Project Ex	plorer 🛛 📄 🔁 📄 🖓 Toggle	1.Choise Debug Configuration	
	Debug Configurations Create, manage, and run configuration	15	~ ×
	2.00	suble -dick,generate new obj file	
		Name: GPIO_Toggle obj 4.Choise Debugger	
E Outline &	C GDB OpenOCD Debugging GDB OpenOCD MRS Debugging GDB OpenOCD MRS Debugging GDB Toggle obj 3.Click new obj file	Wain Suburger Startup Startup	Bron nOCD/bin/ r the <u>proje</u>
outline is r		Skip download before debug	
	Filter matched 3 of 5 items	Revert	Apply
	Filter matched 3 of 5 items	Revert 6.Debug Debug	App

1) Toolbar description

Click Debug button in the menu bar to enter the download, see the image below, the download toolbar.



Detailed functions are as follows.

- 1. Restart: After reset, the program returns to the beginning.
- 2. Continue: Click to continue debugging.
- 3. Terminate: Click to exit debugging.
- 4. Single-step jump-in: For each key click, the program runs one step and encounters a function to enter and execute.
- 5. Single-step skip: jump out of the function and prepare the next statement.
- 6. Single-step return: return to the function that was jumped into
- 7. Instruction set single-step mode: click to enter instruction set debugging (need to use with 4, 5 and 6 functions).
- 2) Set breakpoints

Double-click on the left side of the code to set a breakpoint, double click again to cancel the breakpoint, set the breakpoint as shown in the following figure;

132 * @return none 133 *1 134⊖ int main(void) 135 { ule i; Set breakpoint 136 137 Delay_Init(); 138 39 USART_Printf_Init(115200); 140 printf("SystemClk:%d\r\n", SystemCoreClock); 141 142 ADC_Function_Init(); 143 DMA_Tx_Init(DMA1_Channell, (u32)&ADC1->RDATAR, (u32)TxBuf, 10); 144 145 DMA_Cmd(DMA1_Channell, ENABLE); 146 147 ADC_RegularChannelConfig(ADC1, ADC_Channel_2, 1, ADC_SampleTime_241Cycles); 148 ADC_SoftwareStartConvCmd(ADC1, ENABLE); Delay_Ms(50); 149 ADC SoftwareStartConvCmd(ADC1, DISABLE); 150

- 3) Interface display
 - (1) Instruction set interface

Click on the instruction set single-step debugging can enter the instruction debugging, to single-step jump in for example, click once to run once, the running cursor will move to view the program running, the instruction set interface is shown as follows.

🔛 Disassembly	23		-
	Enter lo	cation here	
00000540:	auipc	a1,0x20000	
00000544:	addi	al, al, -1344	<pre># 0x20000000 <apbahbpresc< pre=""></apbahbpresc<></pre>
00000548:	addi	a2,gp,-2024	
0000054c:	bgeu	al, a2, 0x560	<handle reset+56=""></handle>
00000550:	lw	t0,0(a0)	-
00000554:	SW	t0,0(al)	
00000558:	addi	a0,a0,4	
0000055a:	addi	al, al, 4	Bunning gursor
0000055c:	bltu	al, a2, 0x550	<handle reset+40=""></handle>
00000560:	addi	a0, gp, -2024	
00000564:	addi	al, gp, -2004	
00000568:	bgeu	a0,a1,0x576	<handle reset+78=""></handle>
0000056c:	SW	zero,0(a0)	-
00000570:	addi	a0, a0, 4	
00000572:	bltu	a0, a1, 0x56c	<handle reset+68=""></handle>
00000576:	li	t0,31	
00000578:	CSIW	0xbc0,t0	
0000057c:	li	t0,11	
0000057e:	CSIW	0x804,t0	
00000582:	lui	t0,0x6	
00000586:	addi	t0,t0,136 #	0x6088
0000058a:	csrs	mstatus, t0	
0000058e:	auipc	t0,0x0	

(2) Program running interface

It can be used with instruction set single-step debugging, still take single-step jumping in as an example, click once to run once, the running cursor will move to view the program running, the program running interface is shown as follows.



4) Variables

Hover over the variable in the source code to display the details, or select the variable and right-click add watch expression

Add Watch Expression		
Expression to watch:		
ss		
	ОК	Cancel

Fill in the variable name, or just click OK to add the variable you just selected to the pop-up.

◎ Breakpoints	😚 Expressions 🛛	🔀 Peripherals	- 0
	1	🔩 🖃 🕂 💥 💥	📫 🖻 🗵
Expression	Туре	Value	
(x)= ss	u16	10	
🐈 Add new	expres		

5) Peripheral registers

In the lower left corner of IDE interface Peripherals interface shows a list of peripherals, tick the peripherals will display its specific register name, address, value in the Memory window.

Peripheral	Address	Description			^
Z R ADC_TKEY	0x40012400	Analog to digital converter			
🗌 🛃 AFIO	0x40010000	Alternate function I/O			
🗆 🛃 ВКР	0x40006C00	Backup registers			
	0x40023000	CRC calculation unit			
🗖 🛃 DBG	0xE0042000	Debug support			
🗆 🛃 DMA	0x40020000	DMA controller			
	0x40023800	Extend configuration			
	0x40010400	EXTI			
🗌 🛃 FLASH	0x40022000	FLASH			
C R GPIOA	0x40010800	General purpose I/O			
	0x40010C00	General purpose I/O			
	0x40011000	General purpose I/O			
	0x40011400	General purpose I/O			
🗌 🚼 I2C1	0x40005400	Inter integrated circuit			v
					5
<				>	

Ionitor 🝦 💥 💥	Renderings	
ADC_TKEY	Register	Address
	→ 品 ADC_TKEY	0x40012400
	> IIII STATR	0x40012400
	> IIII CTLR1_CTLR	0x40012404
	> 1919 CTLR2	0x40012408
	> IIII SAMPTR1	0x4001240C
	> IIII SAMPTR2	0x40012410
	> IIII IOFR1	0x40012414
	> 1919 IOFR2	0x40012418
	> IIII IOFR3	0x4001241C
	> 1819 IOFR4	0x40012420
	> IIII WDHTR	0x40012424
	> III WDLTR	0x40012428
	> IIII RSQR1	0x4001242C
	> IIII RSQR2	0x40012430
	> IIII RSOR3 CHANNEI	0x40012434

Note:

(1) When debugging, click the icon in the upper right corner to enter the original interface.

	and the second s	6
	Quick Access	
-	Restore the origina	al interface
	10 ×1	6 6

(2) For documentation to access the compiler, click F1 to access the help documentation for detailed instructions.

Engineering Chip Selection

In the course of the project there are a variety of chip selection, to CH32V307 development board used chip CH32V307VCT6 as an example of engineering chip selection compilation, has achieved different peripheral functions, the steps are as follows.

 Click Peripheral-> inc folder ch32v30x.h file to check the chip type, as shown below, because the chip type is CH32V307VCT6, so choose CH32V30x_D8C. (Note: If you use CH32V303x series chip choose CH32V30x_D8)

m ch32v30x_dac.n h ch32v30x_dbgmcu.h	10 0 #ifndef CH32V30x_H
h ch32v30x_dma.h	11 #defineCH32V30x_H
🔥 ch32v30x_dvp.h	13 9 #ifdef cplusplus
h ch32v30x_eth.h	14 extern "C" {
🔓 ch32v30x_exti.h	15 #endif
🔓 ch32v30x_flash.h	16
h ch32v30x fsmc.h	179 #if !defined(CH32V30x_D8) && !defined(CH32V30x_D8C)
h ch32v30x_gpio.h	18 //#define CH32V30X_D8 /* CH32V303X */
h ch32v30x_i2c.h	20
h ch32v30x iwda.h	21 #endif

 Select the startup file, click on the Startup folder, select the corresponding startup file defined, as shown below, because step 1 select CH32V30x_D8C, so select the startup_ch32v30x_D8C.S file (Note: If using CH32V303x series chips select startup_ch32v30x_D8.S)



Note: In the project is not used in the file, such as in the folder file click delete, will lead to the file directly deleted to the return station, re-use needs to recompile to be able to, so for no use of the file is recommended to use the

participate / exclude compile function, to Startup folder compile / exclude a brief description. First of all, select the project right click, select the compile involved/excluded function button, take the startup_ch32v30x_D8.S file in the figure as an example, if the project status is excluded compile, click this function can be involved in compile. Anyway, if the project status is compile-in, click this function to compile-out. The same applies to folders.

startup_ch32v3	0x_0	08C.S	9 ****	***********
🕞 obi		New	>	section .
Contraction		Open Open With	>	align 1 t: handle re
CH32V20v IAP		Сору	Ctrl+C	word 0x0000
CH372Device		Paste	Ctrl+V	word 0x0000
CHV307 APP	-	Pamaua	Delete	word 0x00000
CHV30x IAP	^		Delete	word 0x00000
CompatibilityHID		Move		word 0x00000
Compatibility/IID		Rename	F2	word 0x00000
Discontinuous mod l		Build Project	F7	word 0x0000
Discontinuous_mod I	5	Refrech	55	word 0x00000
	2	Renesii	15	word 0x00000
	é	Download	>	word 0x00000
DualADC_FastInterle	0	Dahua Ac		word 0x00000
DualADC_InjectionS	~	Debug As		word UXUUIUU
DualADC_RegSimul	He.	Include/Exclude From Build		align 1
DualADC_SlowInterl	1	Code Format		or base:
ExtLines_Trigger	11	Import		option norvo
FLASH_Program	- /-	Event		word star
GPIO_Toggle		Export		word 0
HIDKeyboardDevice		Translate Selected File(s)		
utline 📳 History 🛛		Clean Selected File(s)		🔀 🔝 Problem
		Compare With	>	/Startup/star
ip_ch32v30x_D8.S		Replace With	>	Property
sion Time		Add Francisco Library		v lefe
4/13/22, 10:14 AM		Add Extension Library		* Inio
		Select Debugger		debugger
		Open Containing Folder		last modifi
		Onen MPS Concela	Ctrl (Chift ()/	nocation
		open mixs console	Cur+shift+v	size
		Properties		5120

4. WCH-LinkUtility.exe Download

The download process for the chip using the WCH-LinkUtility tool is:

- 1) Connect WCH-Link
- 2) Select chip information
- 3) Add firmware
- 4) If the chip is read protected, you need to release the chip read protection.
- 5) Execute

WCH-Lin Query File Targe	hkUtility V Chip Info t View	1.50 rmation	uery ,Set	,Can cel Re	ad Protec	t						×
			36	b 🗟	Flach	Read Ch	ip Flash					
MCU Core	2. RISC-V	✓ Series:	CH32V3	0X ~ Ado	dress: Oxi Set Config	080000 Juratior	00 ~	Name MCU UID	1	Value		
Erase All		Program		Verify	🗹 Re	eset an	d Run	Read-Pro	tect	Disable		
O Enable P	rotect C) Disable Prot	ect 🗌	Set Low S	peed Mod	e		Link Vers	sion			
Close 3.	3V output	after operati	on 🗆	Close 5.0V	output a	fter op	eration	D	isable	Two-Line	Interfa	се
🕝 Disable S	Stop-Mode	RST 🔽	Disable S	tandby-Mo	de RST	I	Enable So	ft-Ctrl IWD	G			
DATA0: 0x	FF	DA	TA1: Ox	FF		25	6K ROM 4	64K RAM	~	Set	Get	
WRPO: 0x	FF	0	<mark>2</mark> 1	2	2 3	3	4	5		6	7	,
WRP1: 0x	FF	8	9	2 10	🖸 1	1	2 12	2 13		2 14	🗹 1	5
WRP2: 0x	FF	16	17	2 18	I	9	20	21		22	2	23
WRP3: 0x	FF	24	25	26	2	27	28	29	1	30	23	81
Firmware:	NER\Des	ctop\EVT\CH	32V307E	VT_V1.9	CH32V30	7EVT\E		I\GPIO\GPI	0_То	ggle\obj\G	PIO_T	oggle.hex
	Auto d	ownload whe	n WCH-	Link was lir	nked			De	tectio	n Interval(s):	5
Chip Flash	Addr: 0x	8000000	~	Size: 0x	10000	Data	Width:	16bytes	~ (Show AS		Clear
		Coloret C	+ C-+ Li	-k Mada								▲ ▼
Current WO	CH-Link Ma	de: WCH	LinkRV	ik Wode		/	0	Get			Set	
Operation R	esult: 🤇					Re	sult Collec	t: S	ucc:1	Toatal:1		Clear
16:48:03:83 16:48:03:84 16:48:03:84	80>> Begir 11>> Succ 14>> Oper	n to Reset eed ation is Succ	essful									1

5. WCHISPTool.exe Download

The WCHISPTool tool is used to download the chip, supporting both USB and serial port. the USB pins are PA11 (DM), PA12 (DP) or PB6 (DM), PB7 (DP), and the serial port pins are PA9 (TX), PA10 (RX). The download process is:

- 1) BOOT0 to VCC and BOOT1 to ground, connected to PC via serial port or USB.
- 2) Open the WCHISPTool tool, select the appropriate download method, choose to download the firmware, check the chip configuration and click on download.
- 3) BOOT0 is grounded, re-powered and running the APP program.

The WCHISPTool tool interface is shown in the following figure.

WCHISPTool_CH32Vxxx x			MCU series selection
	0		1.MCU Series Selection
ip Option 2		Download Record	
Chip Series CH32V30x ~ Chip Mo wwnload Port USB ~ ³ Autor	del CH32V307VCT6 v	17:10:00:965>> Device: CH32V307VCT6 17:10:00:965>> Flash size: 256Kbytes Device#0 UID:85-66-38-38-FE-09, BTVER:02.60 17:10:02:425-3 开始解除1984代码保护	· RISC-V MCUs
4.Device List, general wn load File	automatic recognition	17:10:02:511>> 成功: 17:10:02:85>> Device CH32V307VCT6 17:10:02:885>> Flash size: 256Kbytes Device年0 UID:85-68-37:6-28-38-3F-E-C9, BTVER:02.60	• Cortex-M MCUs
Object File1 CH32V307EVT_V1.9\CH32V30 Object File2 Object File3		17:10:06:677>> 待下数B(II文/件长度:7460 17:10:06:687>> (目2+0)开始下载 17:10:06:705>> BTVFER0:2.60 17:10:06:703>> UD:85-68-3E-26-3B-38-FE-C9	·High-Speed MCUs
wnload Config		17:10:06:790>>	
Chip Config 6 Download Configuration		17:10:06:837>> 编程中	BLE MCUs
DI Baud	115200	17:10:06:910>> 元成	
Chip Memory Allocation	RAMX 64KB + ROM 256KB	17:10:07:056>> 完成	
Stop-Mode RST	Disable	17:10:07:061>> 成功!	
Standby-Mode RST	Disable	17:10:07:065>> <<<< 本次用时:0.377s	• E8051 USB MCUs
Soft-Ctrl IWDG	Enable	17:11:17:220>> Device: CH32V3U/VC10	
RRP	Enable	Device#0_UID:85-68-3E-26-3B-38-FE-C9_BTVER:02.60	
Clear CodeFlash	Disable		
Perform a soft reset After Download	Enable		[Nore information]
User data DATA0	0x00		
User data DATA1	0x00		WOH HOLL as Least is no
Write protection control bit WRP0	0xFF		WUH MUU selection:
Write protection control bit WRP1	0xFF 🗶		http://wch.cn/search?t=all&q=MCU+
			WOR Chip Manual:
			https://wch.cn/search?t=all&q=brochur
ogress:	and a second		
8.Download	7.Cancel code protection		MGU THE MKS download:
		Cause Clear	http://www.mounriver.com/download

- 1. Select MCU series and chip model
- 2. Select the serial port download mode
- 3. Identify the device, usually automatically, if it fails to identify, you need to select manually
- 4. Select the firmware, select the downloaded .hex or .bin target program file
- 5. Configure the download according to the requirements
- 6. Click download

6. Statement of attention

1) If you use WCH-Link to download, its CON indicator should be long off, if the CON is lit, refer to WCH-Link instructions for specific switching mode.

Detailed inquiries\questions can be logged in the following.

WCH Microelectronics Community: http://www.wch.cn/bbs/forum-106-1.html

WCH official website: http://www.wch.cn/

WCH-LINK instructions for use: https://www.wch.cn/products/WCH-Link.html