需要使用 WCH-LinkE, 在 SWD 接线基础上,将 LinkE 的 RST 引脚 与板子的 NRST 引脚相连

在 MRS 中导出 WCH\_MCU\_ProgramTool

MSC\_U-Disk/User/system\_ch32v20x.c - MounRiver Studio

<u>F</u> ile	<u>E</u> dit	<u>P</u> roject	<u>R</u> un	<u>T</u> ools	<u>F</u> lash	<u>W</u> indow	<u>H</u> elp					
1	•	line 📅 🕯	•	W	CH In-	System Pro	ogramm	er r			•	-
P P	roject	Explorer	×	-	alculate		Jrannici				in.c	
	± 😕	Startup User		D	evice N	/anageme	nt				•	/**
	1	MSC_U-	Disk.e	Ex	cport V	VCH-Link F	ISC-V/A	RM MCU	ProgramToo	I		*
		makefile	e Disk b	Ex	oport l	QMath Lib						*
		MSC_U-	Disk.ls	t							6 7	*

#### 解压后,打开 WCH-LinkUtility

Drv_Link	2022/9/28 16:34	文件夹	
Firmware_Link	2022/9/28 16:34	文件夹	
🗟 libusb-1.0.dll	2022/9/19 16:20	应用程序扩展	233 KB
📓 LinkUtilityUI.ini	2022/10/19 10:11	配置设置	1 KB
McuCompilerDll.dll	2022/9/21 11:13	应用程序扩展	1,600 KB
version.txt	2022/9/28 16:35	文本文档	1 KB
📴 WCH-LinkUtility.exe	2022/9/29 13:36	应用程序	1,906 KB

# 1. 点击 connect wch-link, 显示成功

连接

B WCH-LinkUtility V1.40	– 🗆 X						
File Target View							
🖹 🔂 🕞 🖓 🕹 🗟							
MCU Core: RISC-V $\checkmark$ Series: CH32V30X $\checkmark$ Address: 0x08000000 $\checkmark$	Name Value MCU UID						
Erase All Program Verify Reset and Run	Flash Size Read-Protect						
• Enable Protect O Disable Protect O Set Low Speed Mode							
Close 3.3V output after operation Close 5.0V output after operation	Disable Two-Line Interface						
☑ Disable Stop-Mode RST ☑ Disable Standby-Mode RST ☑ Enable So	ft-Ctrl IWDG						
DATA0: 0x FF DATA1: 0x FF 256K ROM +	64K RAM \vee Set Get						
WRP0: 0x FF 🕑 0 🕑 1 🕑 2 🕑 3 🕑 4	<b>2</b> 5 <b>2</b> 6 <b>2</b> 7						
WRP1: 0x FF 🛛 8 🗳 9 🗳 10 🗳 11 🗳 12	13 2 14 2 15						
WRP2: 0x FF 2 16 2 17 2 18 2 19 2 20	21 22 23						
WRP3: 0x FF 224 25 26 27 28	<b>2</b> 9 <b>3</b> 0 <b>3</b> 1						
Firmware: C:\Users\OWNER\Desktop\MSC_U-Disk.hex							
Auto download when WCH-Link was linked	Detection Interval(S): 5						
Chip Flash Addr: 0x 8000000 V Size: 0x 10000 Data Width:	16bytes 🗸 🗆 Show ASCII 🛛 Clear						
	-						
Current WCH-Link Mode: WCH-LinkRV V	iet Set						
Operation Result: 🔣 Result Collect: Succ:2   Toatal:2 Clear							
10:26:07:965>> Succeed to connect with WCH-Link! 10:26:11:316>> Succeed to connect with WCH-Link! 10:26:11:493>> Succeed to connect with WCH-Link!	I						

#### 2. 配置 LinkE 为 RSIC-V 模式

WCH-LinkUtility V1.40	– 🗆 X						
File Target View							
🕒 📃 📷 🖾 冬 🕹 🚞							
MCU Core: RISC-V $\checkmark$ Series: CH32V30X $\checkmark$ Address: 0x08000000 $\checkmark$	Name Value MCU UID						
Cerase All Program Verify Reset and Run	Flash Size Read-Protect						
• Enable Protect O Disable Protect O Set Low Speed Mode	Link Version						
□ Close 3.3V output after operation □ Close 5.0V output after operation	Disable Two-Line Interface						
☑ Disable Stop-Mode RST ☑ Disable Standby-Mode RST ☑ Enable So	ft-Ctrl IWDG						
DATA0: 0x FF DATA1: 0x FF 256K ROM -	64K RAM 🗸 Set Get						
WRP0: 0x FF 0 0 1 02 3 04	🗹 5 🔽 6 🔽 7						
WRP1: 0x FF 🛛 8 🗳 9 🗳 10 🗳 11 🗳 12	🗹 13 🛛 14 🔍 15						
WRP2: 0x FF 🛛 16 🔽 17 🔽 18 🖓 19 📿 20	21 22 23						
WRP3: 0x FF 24 25 26 27 28	✓ 29						
Firmware: C:\Users\OWNER\Desktop\MSC_U-Disk.hex							
Auto download when WCH-Link was linked	Detection Interval(S): 5						
Chip Flash Addr: 0x 8000000 ~ Size: 0x 10000 Data Width:	16bytes 🗸 🗌 Show ASCII 🛛 Clear						
	<b>v</b>						
Current WCH-Link Mode: WCH-LinkRV $\checkmark$ C	iet Set						
Operation Result: 🔣 Result Collect: Succ:2   Toatal:2 Clear							
10:29:05:898>> WCH-Link is at RISC-V mode!							
10:29:08:883>> Succeed:WCH-Link is already at RISC-V mode!							

3.选择芯片型号

WCH-LinkUtility V1.40		— (	×	
File Target View				
🔒 📃 🗟 💫 🕹 🗟 🗎				
MCU Core: RISC-V $\checkmark$ Series: CH32V20X $\checkmark$ Address: 0x08000000 $\checkmark$	Name	Value		
	Flash Size			
🗹 Erase All 🛛 🗹 Program 🖓 Verify 🔤 Reset and Run	Read-Protect			
● Enable Protect ○ Disable Protect □ Set Low Speed Mode	Link Version			
□ Close 3.3V output after operation □ Close 5.0V output after operation	Disable	Two-Line Interf	face	
☑ Disable Stop-Mode RST ☑ Disable Standby-Mode RST ☑ Enable So	ft-Ctrl IWDG			
DATA0: 0X FF DATA1: 0X FF 128K ROM	+ 64K RAM 🗸	Set Get		
WRP0: 0x FF 0 0 1 2 3 4	<b>5</b>	6	7	
WRP1: 0x FF 🛛 8 💟 9 💟 10 💟 11 💟 12	<b>1</b> 3	<b>1</b> 4	15	
WRP2: 0x FF 2 16 2 17 2 18 2 19 20	21	22 🔽	23	
WRP3: 0x FF 24 25 26 27 28	29	<b>3</b> 0	31	
Firmware: C:\Users\OWNER\Desktop\MSC_U-Disk.hex				
Auto download when WCH-Link was linked	Detection Interval(S): 5			
Chip Flash Addr: 0x 8000000 V Size: 0x 10000 Data Width:	16bytes 🗸 🗌	Show ASCII	Clear	
			•	
Current WCH-Link Mode: WCH-LinkRV v	Get	Set		
Operation Result: 🔣 Result College	t: Succ:2	Toatal:2	Clear	
10:29:05:898>> WCH-Link is at RISC-V mode! 10:29:08:882>> Changing WCH-Link mode 10:29:08:883>> Succeed:WCH-Link is already at RISC-V mode!			I	

## 4. 当 SWD 功能被占用时,使用 LinkE 擦除 flash

📃 WCH-Li	inkUtility V1.40						_		
File Targe	et View								
	Connect WCH	-Link							
	Disconnect Query Chip Info			Flach					
мо				ss: 0x08	000000 ~	Name	Value		
	Erase Chip	F9				Flash Size			
🗹 E	Program	F10		🔽 Rese	et and Run	Read-Protect			
OE	Verify	F11		ad Mode		Link Version			
	Reset	F12							
•	Ouery Chip R-F	Protect Status		tput afte	er operation	Disable Two-Line Interface			
<b>I</b>	Enable Chip R-	Protect		RST	Enable So	ft-Ctrl IWDG			
DA	Disable Chip R	-Protect			128K ROM +	- 64K RAM 🗸	Set Get		
	Ouery Flash Of	- Status							
WF	Enable Flash O	F		2 3	🗹 4	2 5	6	7	
WF				11	2 12	2 13	<mark>2</mark> 14	15	
WF	Clear All Code	Flash-By Pin N	RST	<b>1</b> 9	20 🗹	21	22 🗸	23	
WK	Clear All Code	Flash-By Powe	r off	27	28	29	<b>3</b> 0	31	
Firmware:	C:\Users\OW	NER\Desktop\M	SC_U-Disk.h	ex					
	Auto down	load when WCł	H-Link was lin	ked Detection Interval(S): 5					
Chip Flash	Addr: 0x 80	00000 ~	Size: 0x	10000 C	Data Width:	16bytes 🗸 🗌	Show ASCII	Clear	
Current W	CH-Link Mode:	WCH-LinkR\	1	~	G	iet	Set		
Operation	Doculta				Daruk Call		L Tastria		
Operation	Kesult: 🗸				Kesuit Collec	t: Succ:2	Toatal:2	Clear	
10:29:05:8	98>> WCH-Link 82>> Changing	c is at RISC-V m	ode! e						
10:29:08:8	83>> Succeed:	WCH-Link is alre	eady at RISC	-V mode!					

### 5. 选择 Hex 或 Bin 文件

B WCH-LinkUtility V1.40	- 🗆 X						
File Target View							
🔒 🛃 👪 👪 🖓							
MCU Core: RISC-V V Series: CH32V20X V Address: 0x08000000 V	Name Value						
	MCU UID Ebsh Size						
🗹 Erase All 🛛 Program 🗹 Verify 🔽 Reset and Run	Read-Protect						
• Enable Protect O Disable Protect O Set Low Speed Mode	Link Version						
□ Close 3.3V output after operation □ Close 5.0V output after operation	Disable Two-Line Interface						
☑ Disable Stop-Mode RST ☑ Disable Standby-Mode RST ☑ Enable Standby-Mode RST	Soft-Ctrl IWDG						
DATA0: 0x FF DATA1: 0x FF 128K ROM	+ 64K RAM V Set Get						
WRP0: 0x FF 🗹 0 🔽 1 🗹 2 🗹 3 🗸 4	<b>5 6 7</b>						
WRP1: 0x FF 28 29 210 211 212	2 🔽 13 🔽 14 🔽 15						
WRP2: 0x FF 216 217 218 219 20	0 🔽 21 💟 22 💟 23						
WRP3: 0x FF 24 25 26 27 28	8 🗹 29 🔽 30 🔽 31						
Firmware: C:\Users\OWNER\Desktop\MSC_U-Disk.hex							
Auto download when WCH-Link was linked	Detection Interval(S): 5						
Chip Flash Addr: 0x 8000000 V Size: 0x 10000 Data Width:	16bytes V Show ASCII Clear						
	-						
	•• )						
Current WCH-Link Mode: WCH-LinkRV ~	Get Set						
Operation Result: 🔣 Result Collect: Succ:2   Toatal:2 Clear							
10:42:21:166>> Succeed!							
10:42:28:400>> Succeed!	1						

6. 解除读保护

WCH-LinkUtility V1.40	– 🗆 X						
File Target View							
MCU Core: RISC-V V Series: CH32V20X V Address: 0x08000000 V	Name Value						
	Flash Size						
🗹 Erase All 🛛 Program 🔽 Verify 🔽 Reset and Run	Read-Protect						
Set Low Speed Mode							
□ Close 3.3V output after operation □ Close 5.0V output after operation	Disable Two-Line Interface						
☑ Disable Stop-Mode RST ☑ Disable Standby-Mode RST ☑ Enable Standby-Mode RST	oft-Ctrl IWDG						
DATA0: 0x FF DATA1: 0x FF 128K ROM	+ 64K RAM v Set Get						
WRP0: 0x FF 🕑 0 🕑 1 🕑 2 🕑 3 🕑 4	🗹 5 🔽 6 🗹 7						
WRP1: 0x FF 🛛 8 🗳 9 🗳 10 🗳 11 🗳 12	🗹 13 🛛 14 🛛 15						
WRP2: 0x FF 🗹 16 🗹 17 🔽 18 🗹 19 💟 20	🗹 21 🔽 🗹 23						
WRP3: 0x FF 24 25 26 27 28	🗹 29 🛛 30 🖓 31						
Firmware: C:\Users\OWNER\Desktop\MSC_U-Disk.hex							
Auto download when WCH-Link was linked	Detection Interval(S): 5						
Chip Flash Addr: 0x 8000000 V Size: 0x 10000 Data Width:	16bytes V Show ASCII Clear						
	-						
Current WCH-Link Mode: WCH-LinkRV ~	Get Set						
Operation Result: 🔀 Result Colle	ct: Succ:2   Toatal:2 Clear						
10:43:40:141>> Begin to set chip type 10:43:40:203>> Succeed							
10:43:40:207>> Please disable read-protect before program or verify!							

7. 下载程序

WCH-LinkUtility V1.40 File Target View		×						
🔒 📃 🛅 🔂 🕹 🔂 📄								
MCU Core: RISC-V V Series: CH32V20X V Address: 0x08000000 V	Name Value MCU UID							
Erase All Program Verify Reset and Run	Flash Size Read-Protect Disable Link Version							
Enable Protect Obisable Protect Set Low Speed Mode     Close 3.3V output after operation Oclose 5.0V output after operation     Disable Two-Line Interface								
✓ Disable Stop-Mode RST     ✓ Disable Standby-Mode RST     ✓ Enable Standby-Mode RST       DATA0: 0x     FF     DATA1: 0x     FF       128K ROM	Goft-Ctrl IWDG							
WRP0: 0x         FF         Ø         Ø         I         Ø         2         Ø         Ø         I         Ø <thø< th="">         Ø         <thø< <="" td=""><td>2 5 2 6 2 7 2 2 13 2 14 2 15</td><td></td></thø<></thø<>	2 5 2 6 2 7 2 2 13 2 14 2 15							
WRP2: 0x         FF         I <thi< th="">         I         <thi< <="" td=""><td>0 21 22 23 8 29 30 31</td><td></td></thi<></thi<>	0 21 22 23 8 29 30 31							
Firmware: C:\Users\OWNER\Desktop\MSC_U-Disk.hex								
Auto download when WCH-Link was linked Chip Flash Addr: 0x 8000000 V Size: 0x 10000 Data Width:	Detection Interval(S): 5 16bytes $\checkmark$ Show ASCII Clear							
Current WCH-Link Mode: WCH-LinkRV ~	Get Set	•						
Operation Result: 🔣 Result Colle	ect: Succ:3   Toatal:3 Clea	r						
10:44:39:645>> Begin to Reset 10:44:39:660>> Succeed 10:44:39:665>> Operation is Successful		I						