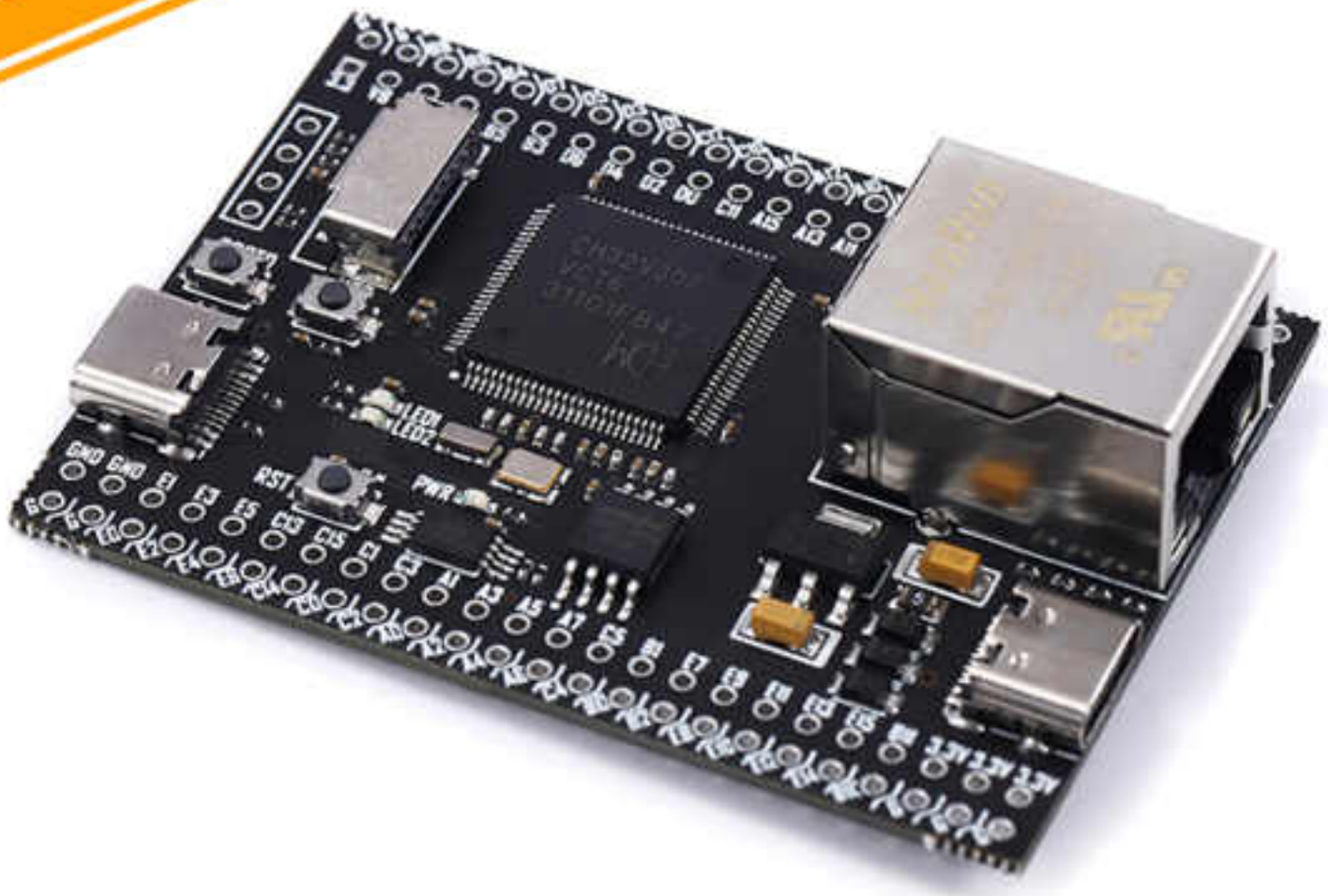
CH32V307VCT6
Core board microcontroller development board

Brand new original WCH Qinheng

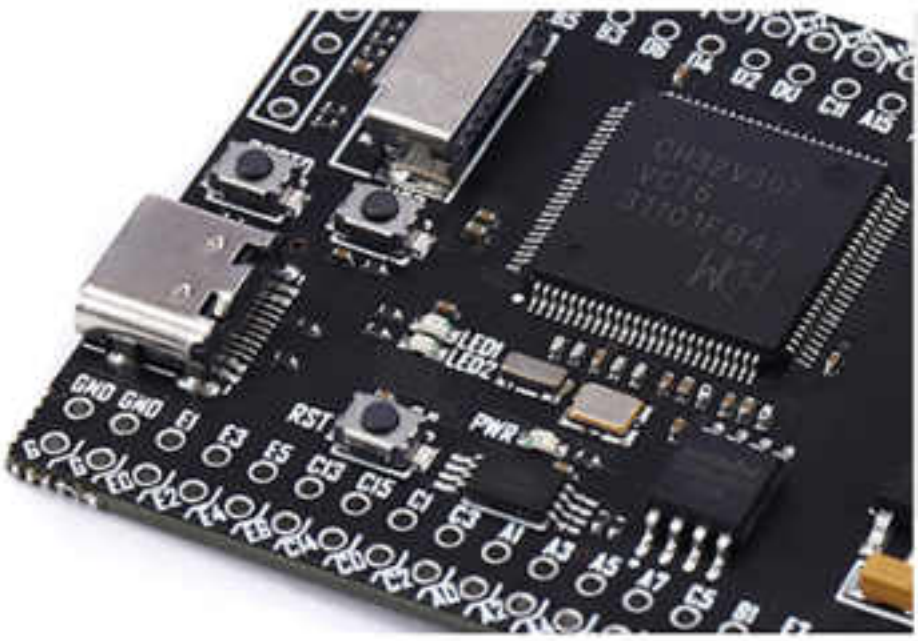


FEATURES

Green

Seiko production

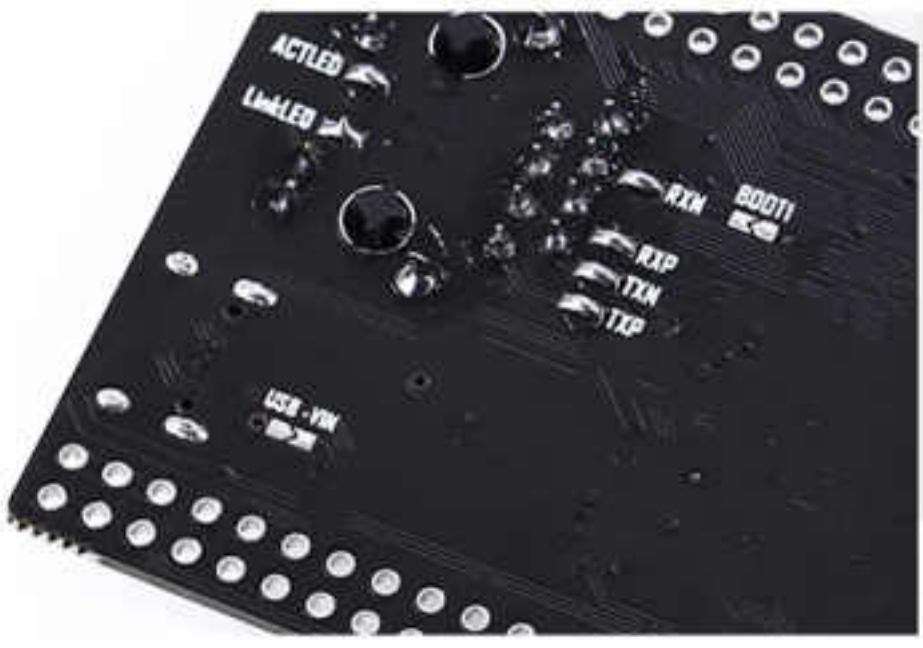
Quality assurance



Good material

durable

Seiko



Easy to install

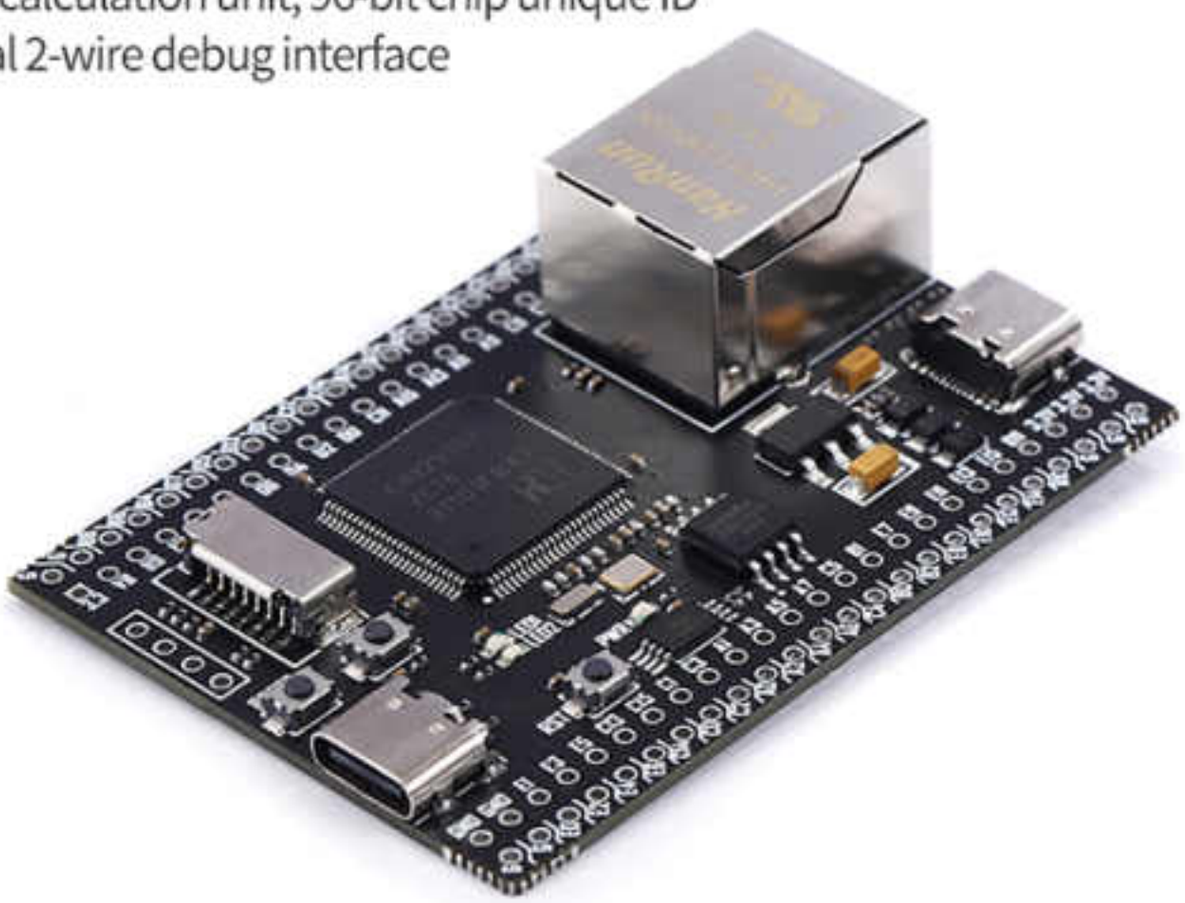
easy to use

APPLICABLE PEOPLE

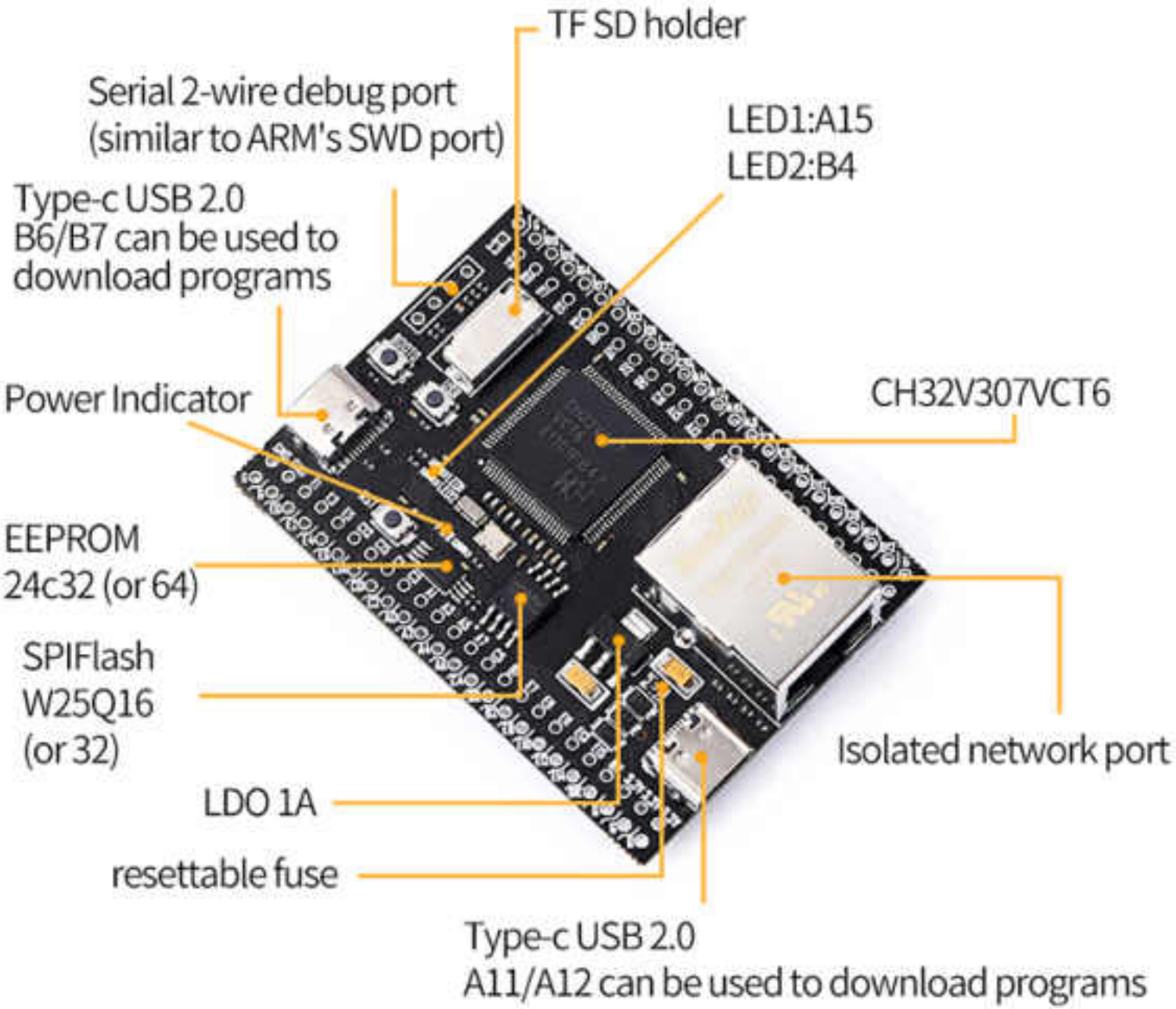
Suitable for college students/engineers/technicians/factory personal DIY /electronic enthusiasts and other operations

Product Introduction

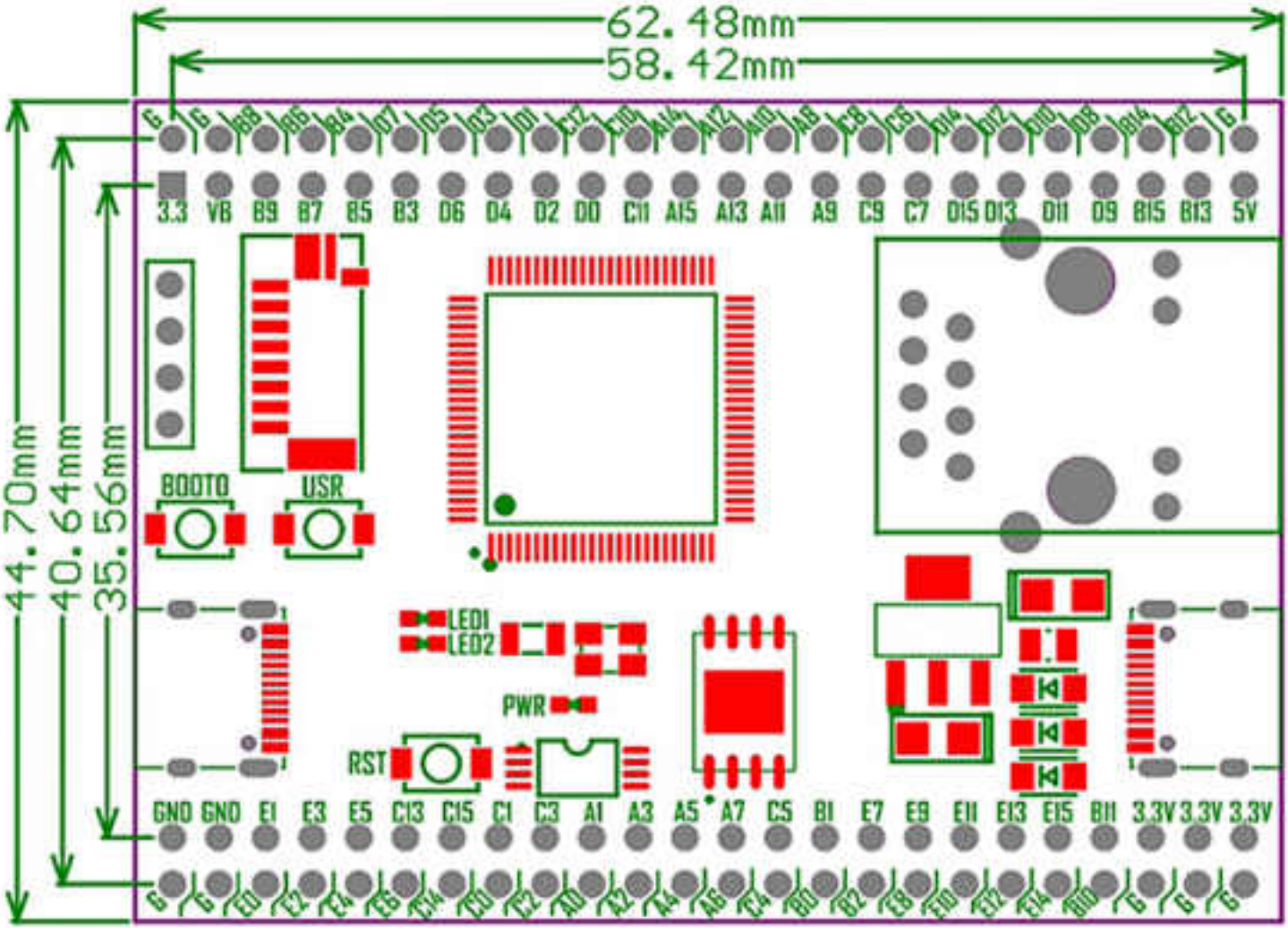
Highland barley V4F processor, up to 144MHz system frequency
Support single-cycle multiplication and hardware division, support hardware floating point operation (FPU) 64KB SRAM,
256KB Flash
Power supply voltage: 2.5/3.3V, GPIO unit independent power supply
Multiple low power modes: sleep, stop, standby
Power-on/power-off reset, programmable voltage detector
2 groups of 18 general-purpose DMA
4 groups of op amp comparators
1 random number generator TRNG
2 groups of 12-bit DAC conversion
2-unit 16-channel 12-bit ADC conversion, 16-channel touch key TouchKey10 timer
USB2.0 full speed OTG interface
USB2.0 high-speed host/device interface (480Mbps built-in PHY) 3 USART interfaces and 5
UART interface
2 CAN interfaces (2.0B active)
SDI0 interface, FSMC interface, DVP digital image interface
2 groups of 11C interfaces, 3 groups of SPI interfaces, 2 groups of 1IS interfaces
Gigabit Ethernet Controller ETH (Built-in 10M PHY)
80 1/0 ports, which can be mapped to 16 external interrupts
CRC calculation unit, 96-bit chip unique ID
Serial 2-wire debug interface



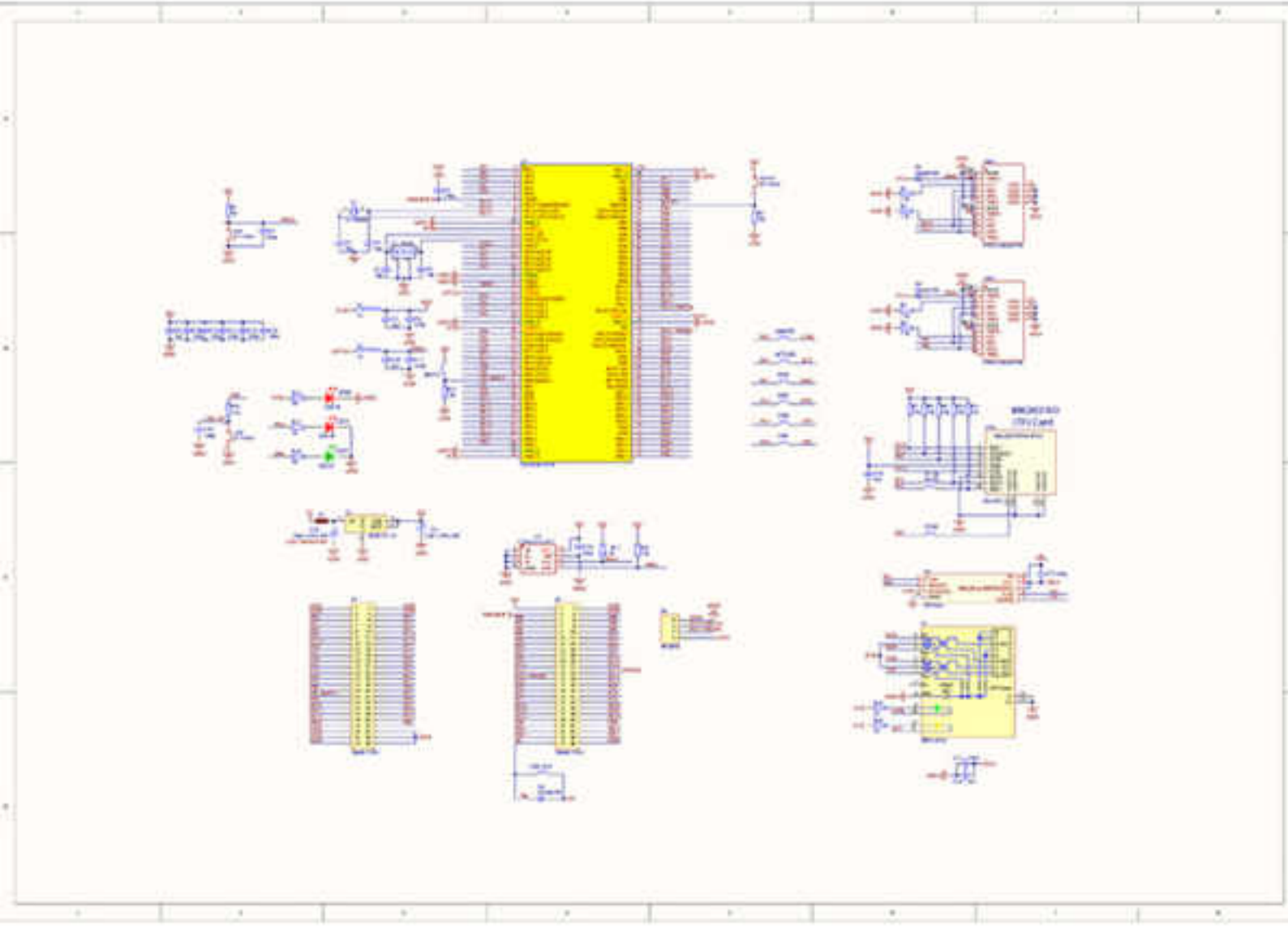
· Functional diagram:



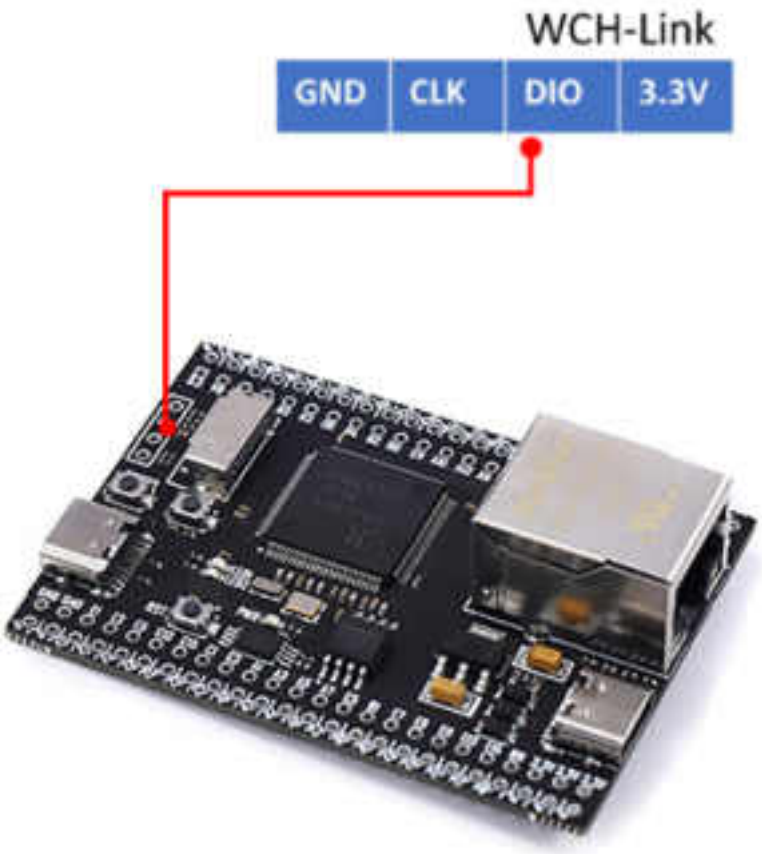
Product Size



Schematic



Advice on debugging, buttons, LEDs and downloads



Onboard LED light function

LED1	Connect PA15
LED2	Connect PB4
PWR	Power Indicator

Onboard key function

RST	reset button
BOOT0	guide button
USR	User button connection to PB3

Debug and download suggestions:
It is recommended to use WCH-Link when debugging
Perform program debugging (such as single-step debugging, breakpoints debugging).
When downloading encryption in batches, it is recommended to use a USB cable to cooperate with the official software to download.
When downloading with a USB cable, the following steps are required:
Press and hold the boot0 button;
Press the RST button once;
Release the boot button after 1 second;
The ISP software recognizes the MCU and performs corresponding operations;
Re-power on or press reset to execute.

About crystal oscillators, clocks

The onboard main crystal oscillator is 8M, and the maximum bus frequency of the MCU is 144MHZ. Onboard 32.768K crystal low-speed crystal oscillator.

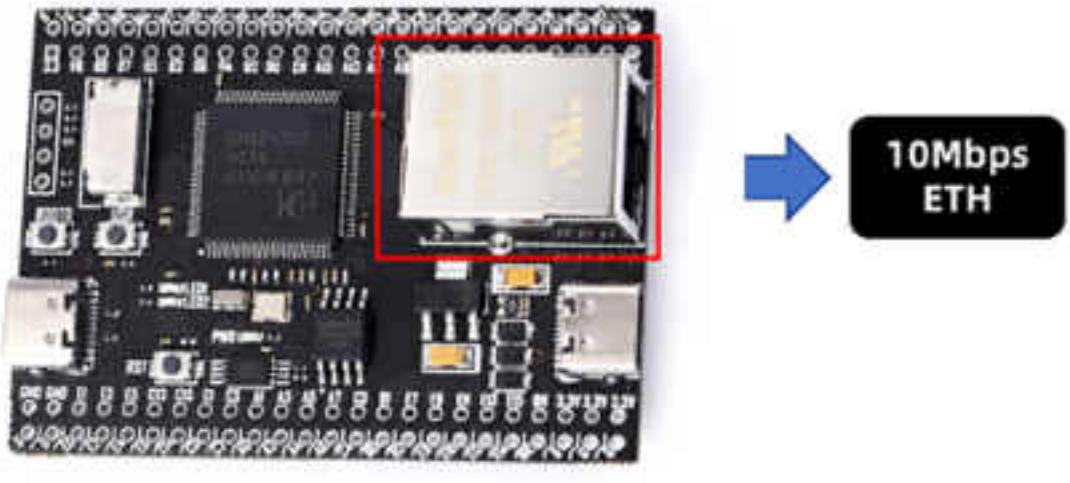
About SPI and QSPI chips

The onboard EEPROM 24C32 (the new version is 24C64) is used for small-capacity data or parameter storage.

The onboard SPI Flash W25Q32 (new version is W25Q64) is used for mass data storage.

About the onboard network port

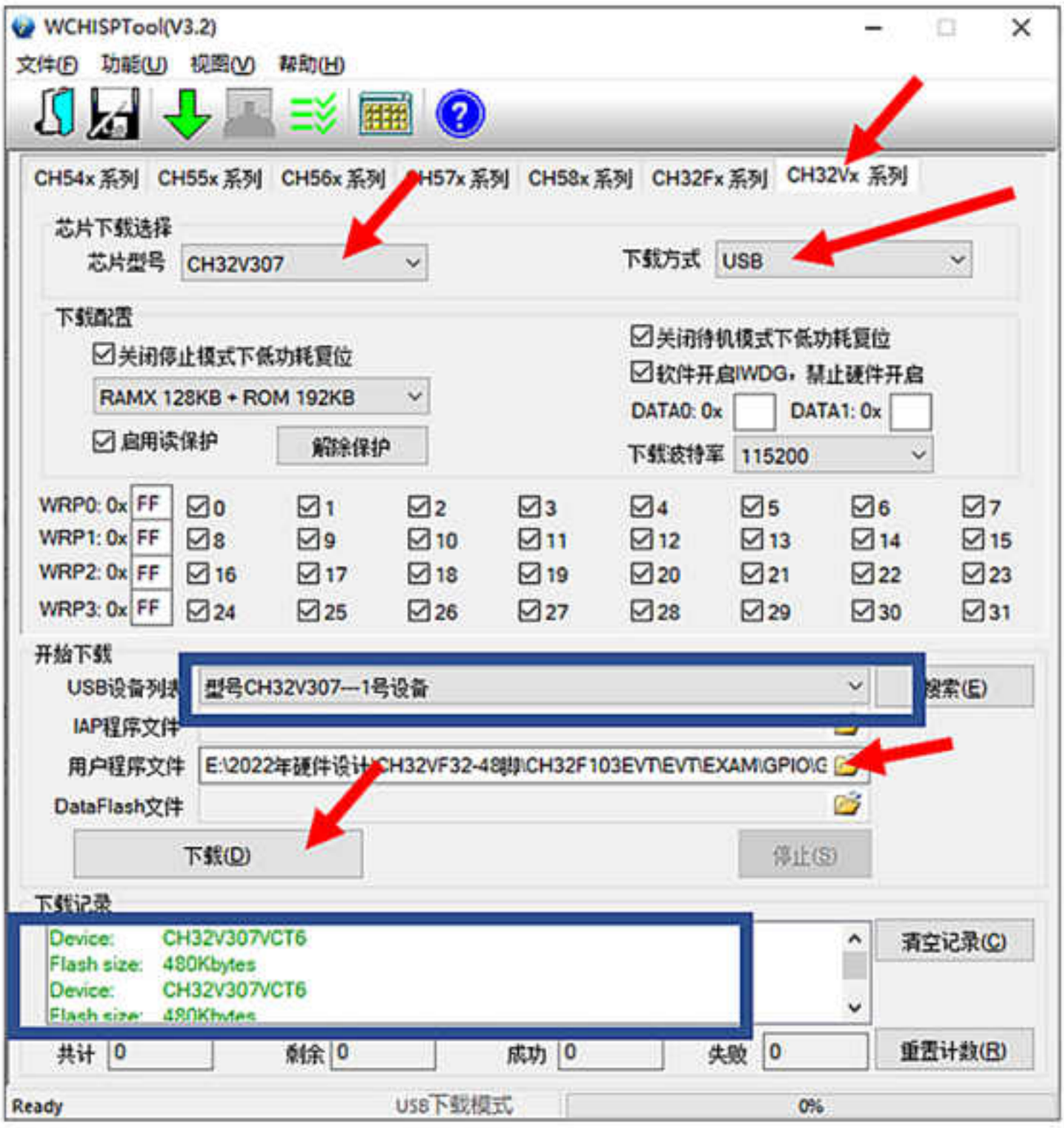
The onboard network port can directly carry out wired Ethernet communication, and the chip integrates PHY,
Compared with external PHY hardware or external integrated network chip, it has the advantage of circuit integration.



USB port download encryption program (burning file operation)

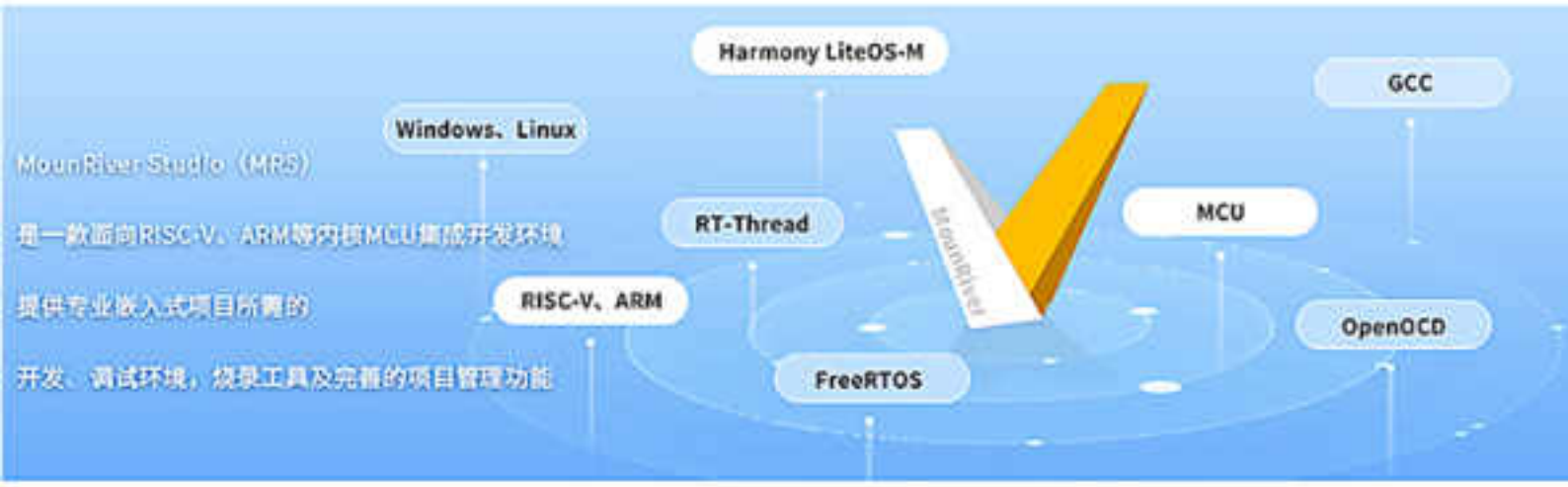
The two Type-C USB ports on the board can be connected to the USB cable to perform the download encryption operation of the program. The downloaded software named WCHISPTool can be obtained from the official website or opened in the programming software MounRiver.

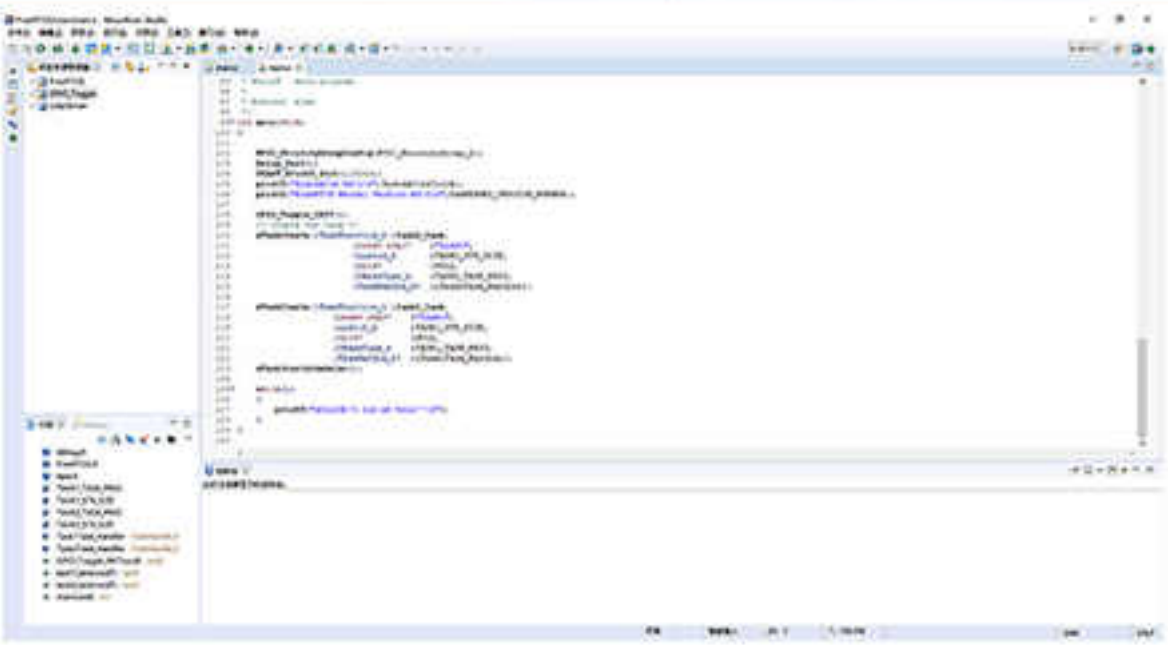
Download and encryption steps:
1. Connect to Type-CUSB (any USB port) line into the computer.
2. Open the WCHISPTool software and configure the corresponding options (such as whether the downloaded file is encrypted or not).
3. Press and hold the boot0 button, press RST while holding down the boot0, and finally release the boot0 button.
4. The software will automatically identify the device that needs to be downloaded.
5. Click Download to complete the download and encryption.



Program writing and debugging

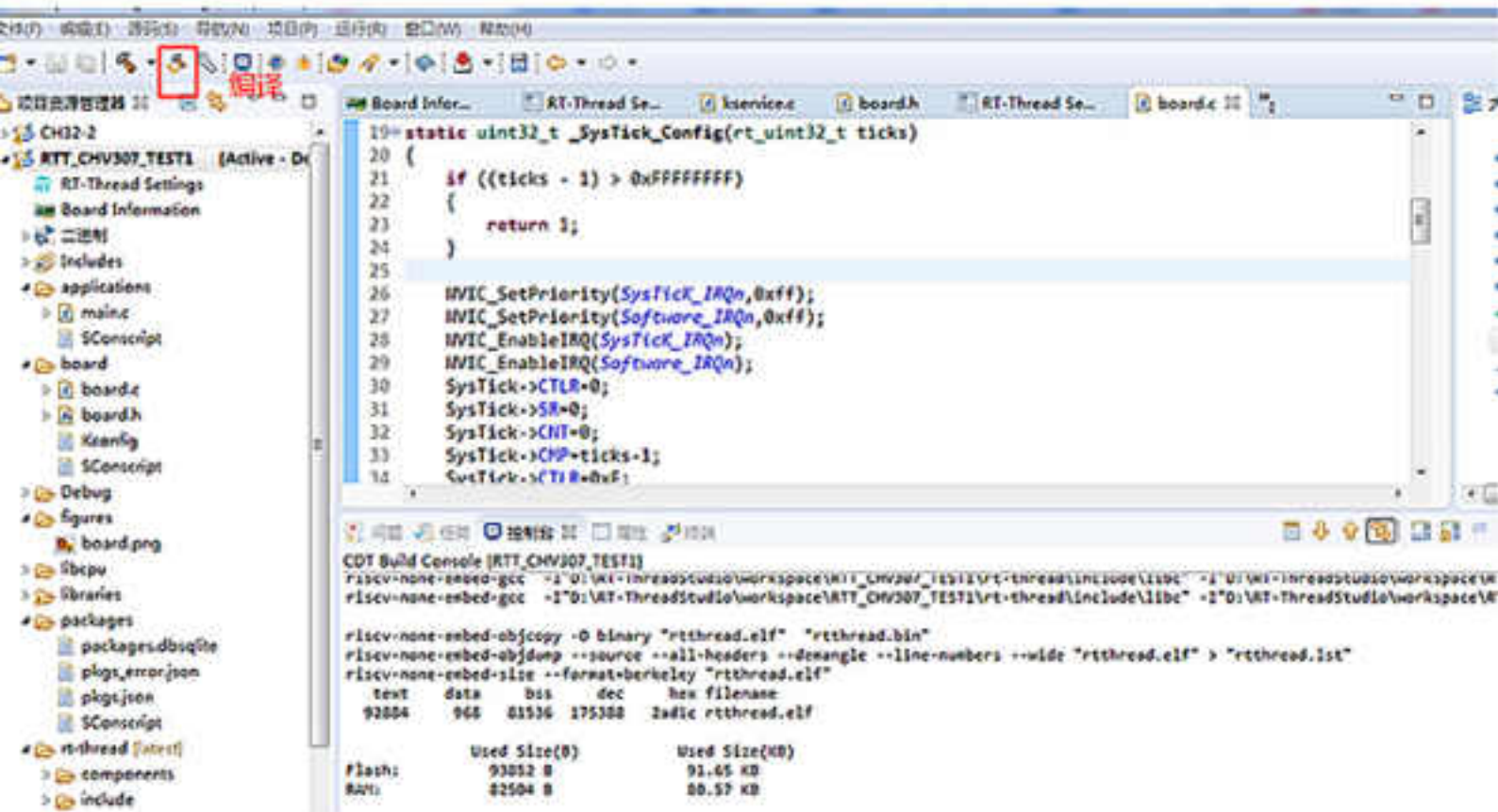
Since the MCU core is RISC-V, this situation determines that the ARM core cannot be used. For example, IDE development programs such as keil-MDK cannot be used. Fortunately, the chip can use a development IDE similar to KEIL-MDK: MounRiver, Also supports Chinese.





Debugger

Also because the MCU core is RISC-V, the debugger of the ARM microcontroller can no longer be used. Fortunately, there are cheaper and more convenient dedicated debuggers WCH-Link. The debugger can switch modes and can be used for ARM The single-chip microcomputer is used as the DAP-CMSIS debugger to debug, and it can switch another mode to debug the CH32V series single-chip microcomputer. The debugger can perform single-step and breakpoint debugging in MounRiver.


编译
Board Infor...
RT-Thread Se...
kservice.c
board.h
RT-Thread Se...
board.c
CH32-2
RTT_CHV307_TEST1
RT-Thread Settings
Board Information
Includes
applications
main.c
SConscript
board
board.c
board.h
Kconfig
SConscript
Debug
figures
board.png
libcpu
libraries
packages
packages.dbsqlite
pkgs_error.json
pkgs.json
SConscript
rt-thread
components
include
19 static uint32_t _SysTick_Config(rt_uint32_t ticks)
20 {
21 if ((ticks - 1) > 0xFFFFFFFF)
22 {
23 return 1;
24 }
25
26 NVIC_SetPriority(SysTick_IRQn,0xff);
27 NVIC_SetPriority(Software_IRQn,0xff);
28 NVIC_EnableIRQ(SysTick_IRQn);
29 NVIC_EnableIRQ(Software_IRQn);
30 SysTick->CTLR=0;
31 SysTick->SR=0;
32 SysTick->CNT=0;
33 SysTick->CMP=ticks-1;
CDT Build Console [RTT_CHV307_TEST1]
riscv-none-embed-gcc -I"D:\RT-ThreadStudio\workspace\RTT_CHV307_TEST1\rt-thread\include\libc" -I"D:\RT-ThreadStudio\workspace\R
riscv-none-embed-gcc -I"D:\RT-ThreadStudio\workspace\RTT_CHV307_TEST1\rt-thread\include\libc" -I"D:\RT-ThreadStudio\workspace\R
riscv-none-embed-objcopy -O binary "rtthread.elf" "rtthread.bin"
riscv-none-embed-objdump --source --all-headers --demangle --line-numbers --wide "rtthread.elf" > "rtthread.lst"
riscv-none-embed-size --format=berkeley "rtthread.elf"
text data bss dec hex filename
92804 968 81536 175308 2adlc rtthread.elf
Used Size(B) Used Size(KB)
Flash: 93852 B 91.65 KB
RAM: 82504 B 80.57 KB