

## Overview

CH585 is a RISC-V MCU/SoC that integrates BLE wireless communication with high-speed USB and NFC. On-chip integrated 2Mbps Bluetooth Low Energy BLE communication module, USB full-speed controller and transceiver, USB high-speed controller and transceiver (480Mbps), NFC near-field communication wireless interface, segmented LCD driver module, LED dot-matrix screen interface, 2 SPI, 4 UARTs, 14 ADC, touchkey detection module and other rich peripheral resources.

## Feature

- **Core**
  - QingKe 32-bit RISC-V3C core
  - Support RV32IMBC instruction set and self-extending instructions
  - Low-power consumption 3-level pipeline
  - Multi-speed system frequency, minimum 32KHz, maximum 78MHz
  - Unique high-speed interrupt response mechanism
- **512K-byte non-volatile memory FlashROM:**
  - 448KB user application program memory area CodeFlash
  - 32KB user non-volatile data memory area DataFlash
  - 24KB system boot program memory area BootLoader
  - 8KB system non-volatile configuration information memory area InfoFlash
  - Support ICP, ISP and IAP, support OTA wireless upgrade
- **128K-byte volatile data storage SRAM:**
  - Sleep retention memory area RAM96K using 96KB dual power supply
  - Sleep retention memory area RAM32K using 32KB dual power supply
- **Power management and low-power:**
  - Support 1.85V~3.6V power supply
  - Built-in DC-DC conversion, reducing power consumption
  - Idle mode: 1.44mA (PLL/HSE non-stop)
  - Halt mode: 1.01mA (PLL/HSE non-stop)
- **200uA (PLL/HSE stopped)**
  - Sleep mode: Multiple gears 2.6uA ~ 8.2uA
  - Shutdown mode: Multiple gears 0.65uA ~ 5.5uA
  - 3.3V disable DC-DC, Bluetooth receive current: 5.8mA
  - 3.3V enable DC-DC, Bluetooth receive current: 3.0mA
  - Optional low-voltage monitoring of low-power or high-precision battery voltage
- **Security properties:**
  - AES-128 encryption and decryption, unique chip ID
- **Bluetooth Low Energy (BLE):**
  - Integrated with 2.4GHz RF transceiver and baseband and link control
  - -95dBm RX sensitivity, programmable +4.5dBm TX power
  - BLE complies with Bluetooth Low Energy Specification 5.4
  - Support 2Mbps and 1Mbps
  - Provide optimized protocol stack and application layer API, and support networking
- **Real-time clock (RTC):**
  - 2 modes of timing and triggering
- **Segment LCD:** Supports 112-dot (28\*4) LCD panel
- **LED dot matrix screen interface:** Support 1/2/4/8-channel data line
- **Clock:** Built-in PLL, 16MHz and 32KHz clocks
- **1-set full-speed USB 2.0 controller and PHY:**