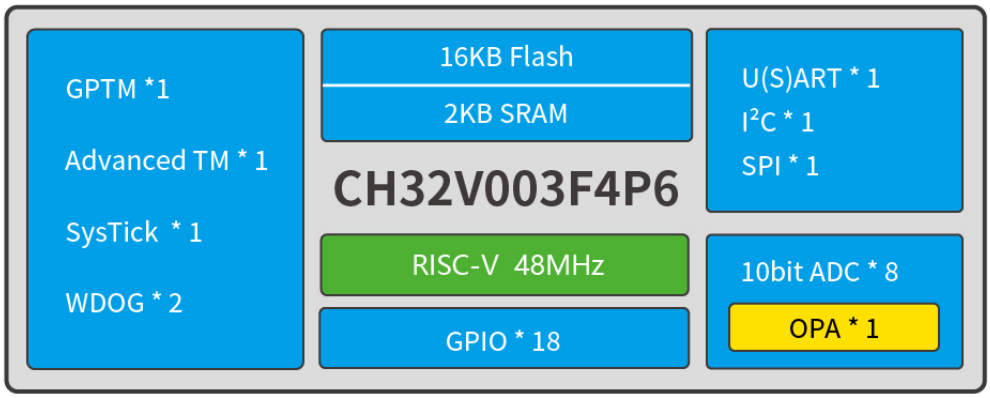
32-bit general-purpose RISC-V MCU-CH32V003

Overview

CH32V003 series is based on QingKe RISC-V2A core design of industrial-grade general-purpose microcontroller, support 48MHz system main frequency, with wide voltage, 1-wire serial debug interface, low-power consumption, ultra-small package, etc. CH32V003 series built-in a group of DMA controller, a group of 10-bit ADC, a group of op-amp comparators, multiple timers and standard communication interfaces USART, I2C, SPI, etc.

System Block Diagram



Features

- QingKe 32-bit RISC-V2A processor, supporting 2 levels of interrupt nesting
- Maximum 48MHz system main frequency
- 2KB SRAM, 16KB Flash
- Power supply voltage: 3.3/5V
- Multiple low-power modes: Sleep, Standby
- Power on/off reset, programmable voltage detector
- 1 group of 1-channel general-purpose DMA controller
- 1 group of op-amp comparator
- 1 group of 10-bit ADC
- 1×16-bit advanced-control timer, 1×16-bit general-purpose timer
- 2 WDOG, 1×32-bit SysTick
- 1 USART interface, 1 group of I2C interface, 1 group of SPI interface
- 18 I/O ports, mapping an external interrupt
- 64-bit chip unique ID
- 1-wire serial debug interface (SDI)
- Package: TSSOP20, QFN20, SOP16, SOP8

Product Selection Guide

Part NO.	Freq	Flash	SRAM	GPIO	Adv/GP Timer	WDOG	ADC Unit/CH	OPA	SPI	I²C	USART	VDD	Package
CH32V003J4M6	48MHz	16K	2K	6	1/1	2	1/6	1	-	1	1	3.3/5.0	SOP8
CH32V003A4M6	48MHz	16K	2K	14	1/1	2	1/6	1	-	1	1	3.3/5.0	SOP16
CH32V003F4U6	48MHz	16K	2K	18	1/1	2	1/8	1	1	1	1	3.3/5.0	QFN20
CH32V003F4P6	48MHz	16K	2K	18	1/1	2	1/8	1	1	1	1	3.3/5.0	TSSOP20

Technical Resources

1. Datasheet: **CH32V003DS0.PDF**, **CH32V003RM.PDF**
2. CH32V003EVT evaluation board manual and reference routines: **CH32V003EVT.ZIP**
3. Integrated development environment (IDE): **MounRiver Studio(MRS)**