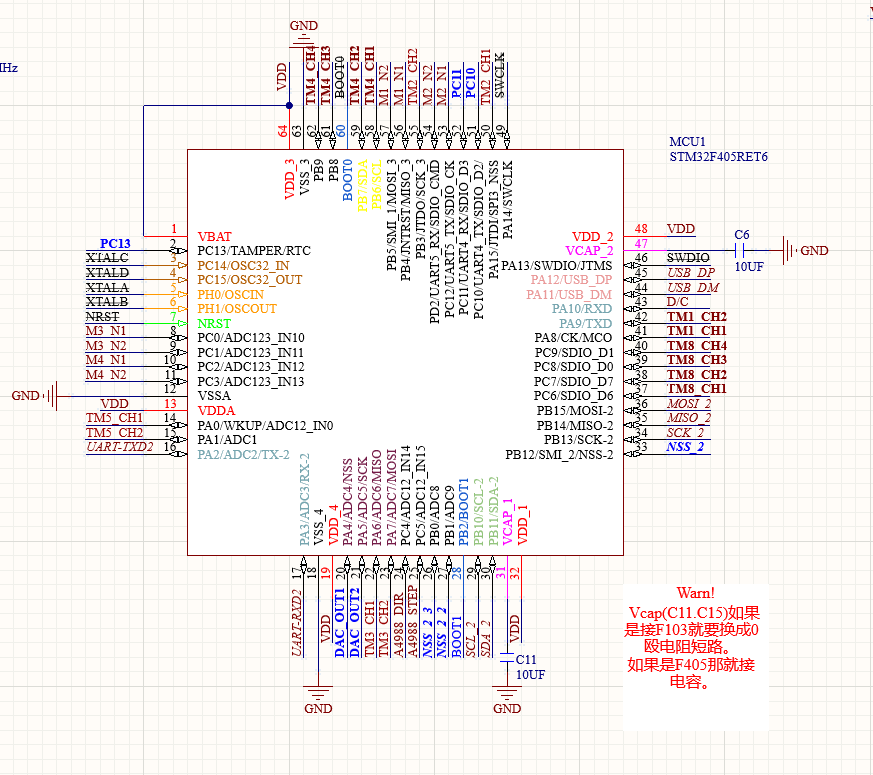
# Cavendish 硬件资源分配手册V3.0





**目录**

[Cavendish 硬件资源分配手册V3.0 1](#_Toc21394)

[Cavendish STM32F103RCT6/RET6 4](#_Toc12727)

[1. LCD 4](#_Toc14757)

[2. KEY 6](#_Toc4278)

[3. 自由IO 7](#_Toc32037)

[4. TIME 8](#_Toc26722)

[1. PWM 8](#_Toc17602)

[5. UART 12](#_Toc1612)

[1. 串口2 12](#_Toc27360)

[2. 串口3 重映射（串口4） 12](#_Toc31227)

[6. SPI 14](#_Toc11479)

[SPI2 14](#_Toc28584)

[7. USB 15](#_Toc24886)

[8. IIC 16](#_Toc14845)

[IIC2 16](#_Toc21767)

[9. ADC 17](#_Toc19125)

[10. DAC （和ADC共用） 18](#_Toc12404)

[11. 步进电机 19](#_Toc6477)

[12. 电机组合 20](#_Toc1330)

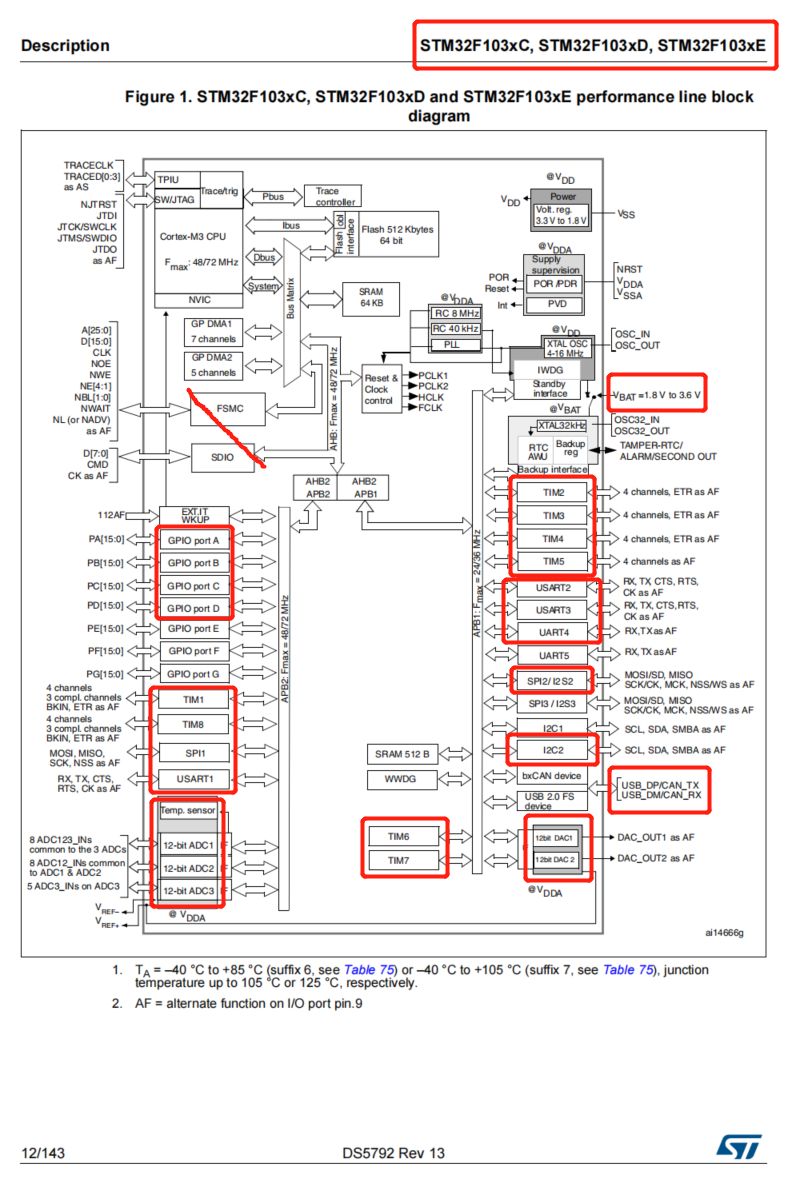
[1. Motor 1 20](#_Toc12325)

[2. Motor 2 20](#_Toc32154)

[3. Motor 3（Only Reptile） 20](#_Toc7104)

[4. Motor 4（Only Reptile） 20](#_Toc6505)

[Cavendish STM32F405RET6 21](#_Toc5391)



## Cavendish STM32F103RCT6/RET6

## LCD

硬件设备LCD，使用硬件的SPI2，其中：

PA10(D/C) PB12(CS) PB13(SCLK) PB15 (MOSI)

以上GPIO均不可除LCD功能以外使用！

#### RES

PB0

#### SPI\_CS(NSS-2)

PB12

#### SPI\_SCL(SCK-2)

PB13

#### SPI\_DC（未引到外拓Pin）

PA10(占用UART1的RXD)，所以本设计如果要使用UART1需要重映射。

#### SPI\_MOSI

PB15

## KEY

#### KEY0

PC13 触摸按键

\*在TYPE版本中也是编码器按键

## 自由IO

和电机控制方向单元共用

PB5

PB6

PC0

PC1

PC2

PC3

PC12

PD2

## TIME

### PWM

通常使用TIM1和TIM8高级定时器做为PWM基础时钟。

##### **TIM4**

通常作为控制舵机的PWM。

PB6 Channel 1

PB7 Channel 2

PB8 Channel 3

PB9 Channel 4

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 定时器4 | 通道 | 默认io | 副用io1 | 副用io2 |
| tim4 | ch1 | pb6 | pd12 |  |
| tim4 | ch2 | pb7 | pd13 |  |
| tim4 | ch3 | pb8 | pd14 |  |
| tim4 | ch4 | pb9 | pd15 |  |

##### **TIM8**

通常为直流有刷电机调试PWM。

PC6 Channel 1

PC7 Channel 2

PC8 Channel 3

PC9 Channel 4

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 定时器8 | 通道 | 默认io | 副用io1 | 副用io2 |
| tim8 | ch1 | pc6 |  |  |
| tim8 | ch2 | pc7 |  |  |
| tim8 | ch3 | pc8 |  |  |
| tim8 | ch4 | pc9 |  |  |

\*在TYPE版本中，TIM8通道3、4作为MOS驱动PWM

#### Capture(编码器)

一般用在读取电机转速、编码按键（相当于鼠标）

##### TIM1

PA8 Channel 1

PA9 Channel 2

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 定时器1 | 通道 | 默认io | 副用io1 | 副用io2 |
| tim1 | ch1 | pa8 | pe9 |  |
| tim1 | ch2 | pa9 | pe11 |  |
| tim1 | ch3 | pa10 | pe13 |  |
| tim1 | ch4 | pa11 | pe14 |  |

##### TIM2

PA15 Channel 1

PB3 Channel 2

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 定时器2 | 通道 | 默认io | 副用io1 | 副用io2 |
| tim2 | ch1 | pa0 | pa15 |  |
| tim2 | ch2 | pa1 | pb3 |  |
| tim2 | ch3 | pa2 | pb10 |  |
| tim2 | ch4 | pa3 | pb11 |  |
| etr |  | pa0 | pa15 |  |

##### TIM3

PA6 Channel 1

PA7 Channel 2

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 定时器3 | 通道 | 默认io | 副用io1 | 副用io2 |
| tim3 | ch1 | pa6 | pc6 | pb4 |
| tim3 | ch2 | pa7 | pc7 | pb5 |
| tim3 | ch3 | pb0 | pc8 |  |
| tim3 | ch4 | pb1 | pc9 |  |

##### TIM5

PA0 Channel 1

PA1 Channel 2

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 定时器5 | 通道 | 默认io | 副用io1 | 副用io2 |
| tim5 | ch1 | pa0 |  |  |
| tim5 | ch2 | pa1 |  |  |
| tim5 | ch3 | pa2 |  |  |
| tim5 | ch4 | pa3 |  |  |

## UART

### 串口1

PA2 TXD

PA3 RXD

|  |  |  |  |
| --- | --- | --- | --- |
| usart2 | 默认io | 副用io1 | 副用io2 |
| Usart1\_tx | pa9 | pb6 |  |
| Usart1\_rx | pa10 | pb7 |  |

### 串口2

PA2 TXD

PA3 RXD

|  |  |  |  |
| --- | --- | --- | --- |
| usart2 | 默认io | 副用io1 | 副用io2 |
| usart2\_ck | pa4 | pd7 |  |
| usart2\_tx | pa2 | pd5 |  |
| usart2\_rx | pa3 | pd6 |  |
| usart2\_cts | pa0 | pd3 |  |
| usart2\_rts | pa1 | pd4 |  |

### 串口3 重映射（串口4）

PC10 TXD

PC11 RXD

|  |  |  |  |
| --- | --- | --- | --- |
| usart3 | 默认io | 副用io1 | 副用io2 |
| usart3\_ck | pb12 | pd10 | pc12 |
| usart3\_tx | pb10 | pd8 | pc10 |
| usart3\_rx | pb11 | pd9 | pc11 |
| usart3\_cts | pb13 | pd11 |  |
| usart3\_rts | pb14 | pd12 |  |
|  |  |  |  |
|  |  |  |  |
| usart4 | 默认io | 副用io1 | 副用io2 |
| usart4\_tx | pc10 |  |  |
| usart4\_rx | pc11 |  |  |

## SPI

SPI2

PB15 MOSI

PB14 MISO

PB13 SCLK

PB12 NSS (LCD)

PB1 NSS2

PB0 NSS3 (LCD res)

|  |  |  |  |
| --- | --- | --- | --- |
| spi2 | 默认io | 副用io1 | 副用io2 |
| \_nss | pb12 |  |  |
| \_sck | pb13 |  |  |
| \_miso | pb14 |  |  |
| \_mosi | pb15 |  |  |

## USB

PA11 USB\_DM

PA12 USB\_DP

## IIC

IIC2

有时也用于超声波（需要改接口）

PB10 SCL

PB11 SDA

|  |  |  |  |
| --- | --- | --- | --- |
| i2c2 |  |  |  |
| i2c2\_smba | pb12 |  |  |
| i2c2\_scl | pb10 |  |  |
| i2c2\_sda | pb11 |  |  |

## ADC

PA4 ADC4

PA5 ADC5

内部测温

## **DAC （和ADC共用）**

PA4 OUT1

PA5 OUT2

OPEN\_0001

PA0 PA1

OPEN\_0010

PA2 PA3

OPEN\_0100

PA4 PA5

OPEN\_1000

PA6 PA7

## 步进电机

Reptile版本没有

DIR PC4

STEP PC5

## 电机组合

### Motor 1

TIM8- Channel 1

编码 Tim2

方向控制 PB4 PB5(不分AB)

### Motor 2

TIM8- Channel 2

编码 Tim1

方向控制 PC12 PD2(不分AB)

### Motor 3（Only Reptile）

TIM8- Channel 3

编码 Tim3 (\*Type 底板为编码按键)

方向控制 PC0 PC1(不分AB)

### Motor 4（Only Reptile）

TIM8- Channel 4

编码 Tim5

方向控制 PC2 PC3(不分AB)

## Cavendish 3.14

