# Introduction to STM32 development board



## 1、Initial understanding of STM32F103ZET6

### 1.1、ST official study materials

1. www.stmcu.org.cn :This website is a link to the ST Chinese community, which includes information on all MCUs of ST, such as: STM32F1 latest chip documentation (reference manual, data manual, errata manual, programming manual, etc.), software resources (firmware library, configuration tools, PC software, etc.), hardware resources (various official evaluation boards), etc.
2. https://www.st.com/content/st_com/zh.html :This URL is the official link of ST. You can get the latest and most complete information about ST on the website. For beginners, it is okay to obtain ST official information from the ST Chinese community. Because the information of the ST Chinese community is generally moved from ST's official website, but if you want to find the latest STM32 information, you still have to go to ST's official website to search.

### 1.2、Peripherals of STM32F103ZET6

As you can see from the figure below, the peripherals supported by ZET6 include: 2 basic timers, 4 general timers, 2 advanced timers, 2 DMA controllers (total 12 channels), 3 SPI, 2 I2C, 5 serial ports, 1 USB, 1 CAN, 3 12-bit ADCs, 1 12-bit Dacs, 1 SDIO interface, 1 FSMC interface, and 112 general IO interfaces

**Table 2. STM32F103xC, STM32F103xD and STM32F103xE features and peripheral counts**

| Peripherals | | STM32F103Rx | | | STM32F103Vx | | | STM32F103Zx | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Flash memory in Kbytes | | 256 | 384 | 512 | 256 | 384 | 512 | 256 | 384 | 512 |
| SRAM in Kbytes | | 48 | 64(1) | | 48 | 64 | | 48 | 64 | |
| FSMC | | No | | | Yes(2) | | | Yes | | |
| Timers | General-purpose | 4 | | | | | | | | |
| | Advanced-control | 2 | | | | | | | | |
| | Basic | 2 | | | | | | | | |
| Comm | SPI($I^2S$)(3) | 3(2) | | | | | | | | |
| | $I^2C$ | 2 | | | | | | | | |
| | USART | 5 | | | | | | | | |
| | USB | 1 | | | | | | | | |
| | CAN | 1 | | | | | | | | |
| | SDIO | 1 | | | | | | | | |
| GPIOs | | 51 | | | 80 | | | 112 | | |
| 12-bit ADC<br>Number of channels | | 3<br>16 | | | 3<br>16 | | | 3<br>21 | | |
| 12-bit DAC<br>Number of channels | | 2<br>2 | | | | | | | | |
| CPU frequency | | 72 MHz | | | | | | | | |
| Operating voltage | | 2.0 to 3.6 V | | | | | | | | |
| Operating temperatures | | Ambient temperatures: –40 to +85 °C /–40 to +105 °C (see *Table 10*)<br>Junction temperature: –40 to + 125 °C (see *Table 10*) | | | | | | | | |
| Package | | LQFP64 | WLCSP64 | | LQFP100, BGA100 | | | LQFP144, BGA144 | | |

1. 64 KB RAM for 256 KB Flash are available on devices delivered in CSP packages only.
2. For the LQFP100 and BGA100 packages, only FSMC Bank1 and Bank2 are available. Bank1 can only support a multiplexed NOR/PSRAM memory using the NE1 Chip Select. Bank2 can only support a 16- or 8-bit NAND Flash memory using the NCE2 Chip Select. The interrupt line cannot be used since Port G is not available in this package.
3. The SPI2 and SPI3 interfaces give the flexibility to work in an exclusive way in either the SPI mode or the $I^2S$ audio mode.

# 2、STM32F103ZET6 programming method

## ST-LINK burning method

**wiring**

| ST-link V2 debug downloader | STM32F103ZET6 |
|---|---|
| VCC | 3V3 |
| SWDIO | SWDIO |
| SWCLK | SWCLK |
| GND | GND |

Software used: STM32CubeIDE

**For the specific construction of the development environment, please refer to the [Development Environment Construction and Use] content in the tutorial, so I won't go into details here.**