

# 2.1.Core board resource description



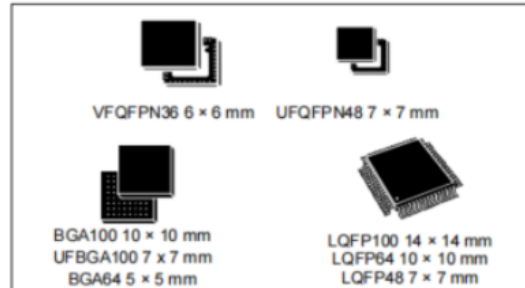
## STM32F103x8 STM32F103xB

Medium-density performance line Arm<sup>®</sup>-based 32-bit MCU with 64 or 128 KB Flash, USB, CAN, 7 timers, 2 ADCs, 9 com. interfaces

Datasheet - production data

### Features

- Arm<sup>®</sup> 32-bit Cortex<sup>®</sup>-M3 CPU core
  - 72 MHz maximum frequency, 1.25 DMIPS / MHz (Dhrystone 2.1) performance at 0 wait state memory access
  - Single-cycle multiplication and hardware division
- Memories
  - 64 or 128 Kbytes of Flash memory
  - 20 Kbytes of SRAM
- Clock, reset and supply management
  - 2.0 to 3.6 V application supply and I/Os
  - POR, PDR, and programmable voltage detector (PVD)
  - 4 to 16 MHz crystal oscillator
  - Internal 8 MHz factory-trimmed RC
  - Internal 40 kHz RC
  - PLL for CPU clock
  - 32 kHz oscillator for RTC with calibration
- Low-power
  - Sleep, Stop and Standby modes
  - V<sub>BAT</sub> supply for RTC and backup registers
- 2x 12-bit, 1  $\mu$ s A/D converters (up to 16 channels)
- Debug mode
  - Serial wire debug (SWD) and JTAG interfaces
- Seven timers
  - Three 16-bit timers, each with up to 4 IC/OC/PWM or pulse counter and quadrature (incremental) encoder input
  - 16-bit, motor control PWM timer with dead-time generation and emergency stop
  - Two watchdog timers (independent and window)
  - SysTick timer 24-bit downcounter
- Up to nine communication interfaces
  - Up to two I<sup>2</sup>C interfaces (SMBus/PMBus<sup>®</sup>)
  - Up to three USARTs (ISO 7816 interface, LIN, IrDA capability, modem control)
  - Up to two SPIs (18 Mbit/s)



ARM 32-bit Cortex-M3 microcontroller, 72MHz main frequency, 64kB flash memory, 20kB SRAM, PLL, embedded internal RC 8MHz and low-speed clock 32kHz, real-time clock, nested interrupt controller, power saving mode, JTAG and SWD, 16-bit timer with input capture, output comparison and PWM synchronization, 16-bit 6-ch advanced timer, 2 16-bit watchdog timers, tick timer, 2 SPI, 2 I2C, 3 USART, USB 2.0 full-speed interface, CAN interface (2.0B active), two 12-bit 10-ch A/D converters, high-speed input/output ports.

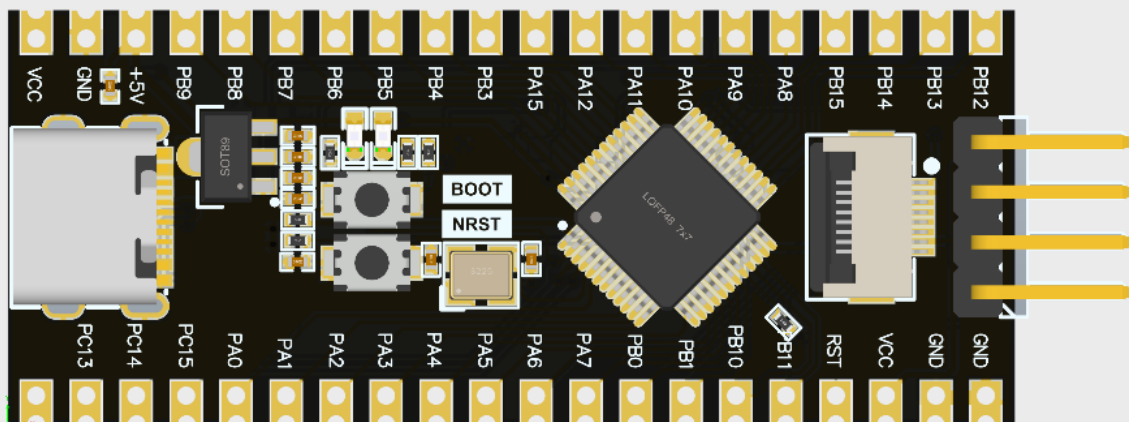
The naming meaning of STM32F103C8T6 is as follows:

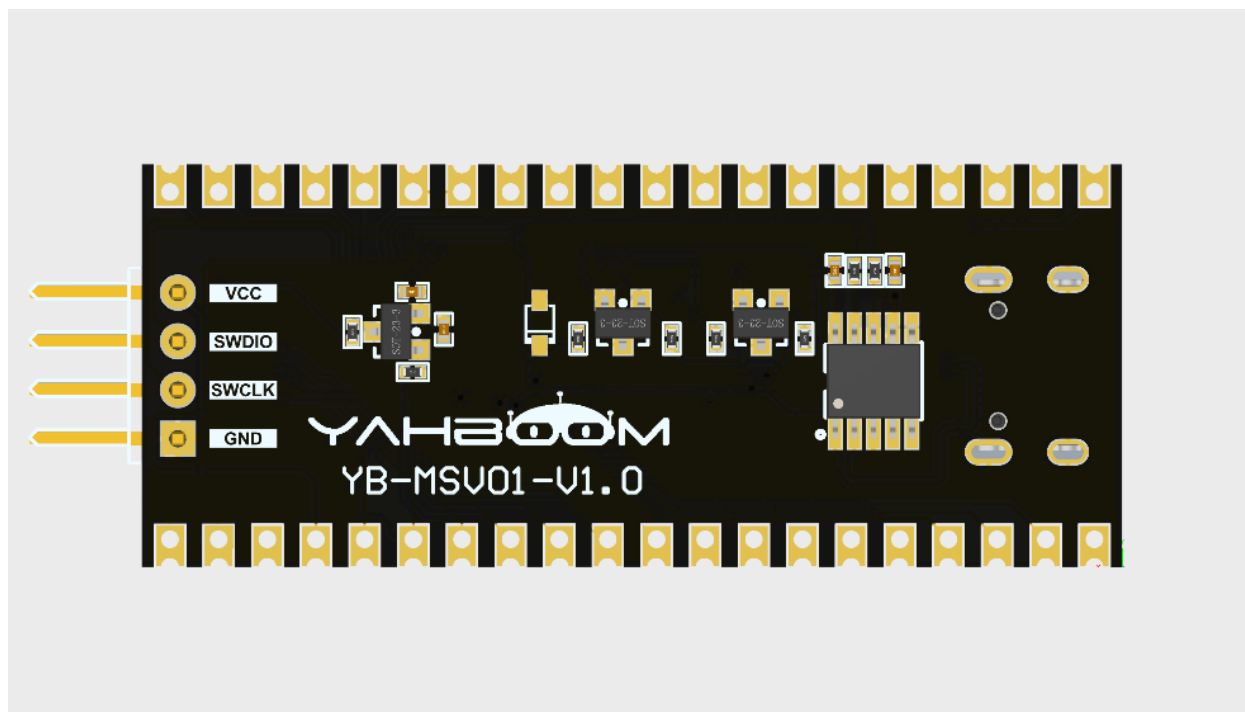
## Description of STM32 models

Taking the STM32F103C8T6 chip as an example, the model consists of 7 parts, and the naming rules are as follows:

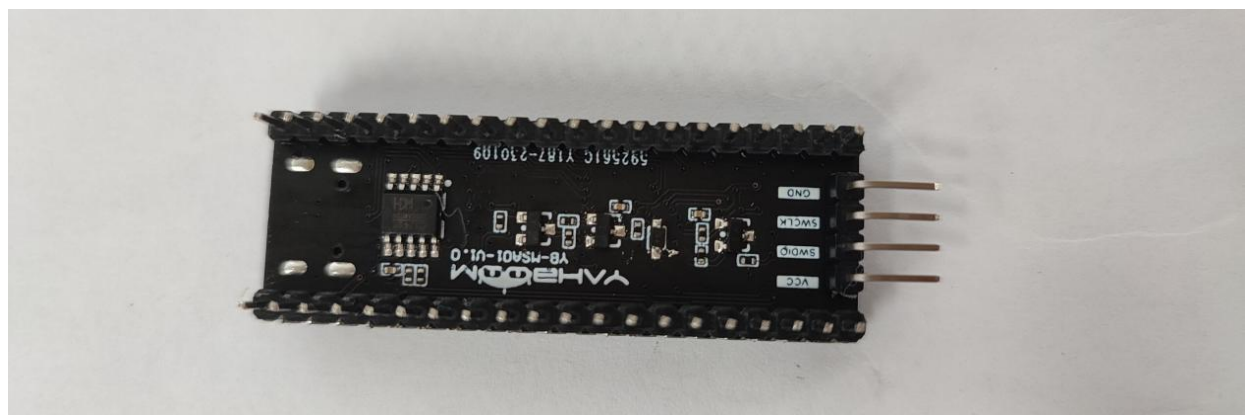
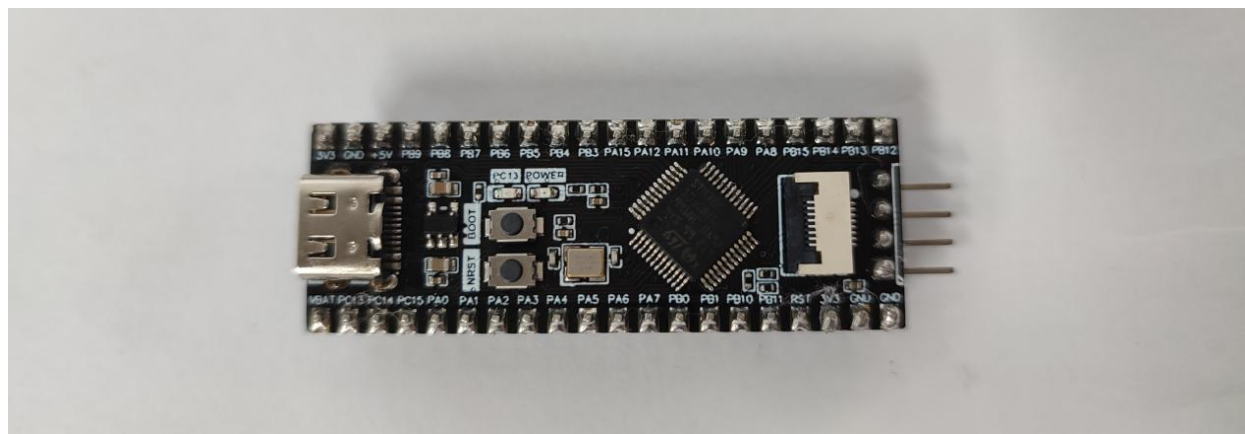
1	STM32	STM32 stands for 32-bit microcontroller with ARM Cortex-M core.
2	F	Represents a chip subfamily
3	103	103 represents enhanced series
4	C	C represents an argument, where T represents 36 pins, C represents 48 pins, R represents 64 pins, V represents 100 pins, Z represents 144 pins, and I represents 176 pins
5	8	8 represents the internal Flash capacity, of which 6 represents 32K bytes of Flash, 8 represents 64K bytes of Flash, B represents 128K bytes of Flash, C represents 256K bytes of Flash, D represents 384K bytes of Flash, E represents 512K bytes Flash, G stands for 1M byte Flash
6	T	T represents package, where H stands for BGA package, T stands for LQFP package, U stands for VFQFPN package
7	6	6 represents the working temperature range, of which 6 represents -40--85°C, and 7 represents -40-105°C

Our development board uses the STM32F103C8T6 chip, the chip appearance and pin diagram are as follows:



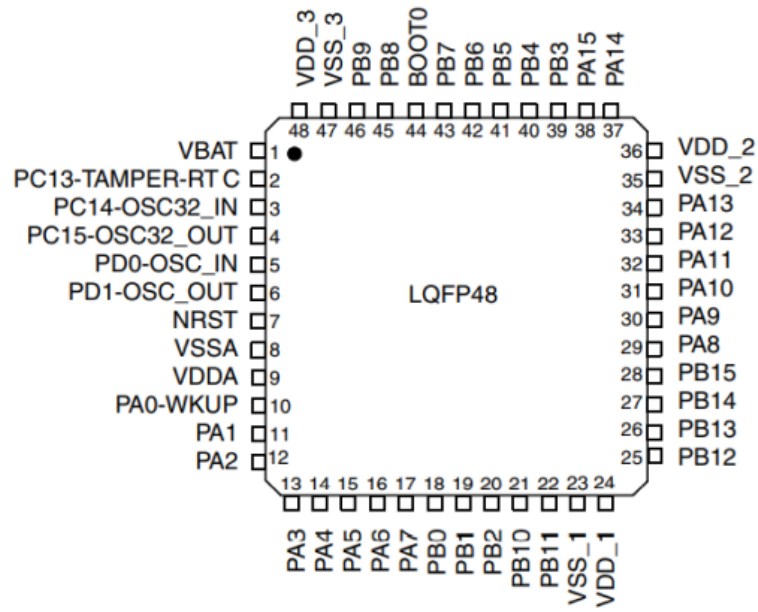


The physical map is as follows:



The chip package diagram is as follows:

Figure 8. STM32F103xx performance line LQFP48 pinout



ai14393b