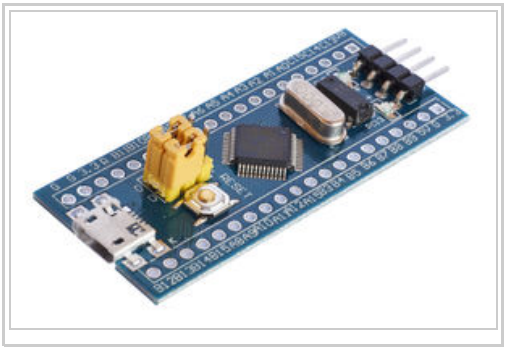
Blue Pill

From STM32duino wiki

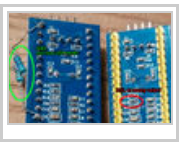
Level of support	Good
Bootloader	Flash with [1] (https://github.com/rogerclarkmelbourne/STM32duino-bootloader/raw/master/STM32F1/binaries/generic_boot20_pc13.bin)
Flash	64 KB/128 KB
RAM	20 KB
User LED(s)	PC13 (lights when PC13 is LOW)
User button(s)	None
RTC Crystal	Yes
ST-Link header	Yes
Schematic	media:Vcc-gnd.com-STM32F103C8-schematic.pdf
Manufacturer data	http://vcc-gnd.com/read.php?tid=369&fid=6
Pinout	media:Bluepillpinout.gif http://reblag.dk/wordpress/wp-content/uploads/2016/07/The-Generic-STM32F103-Pinout-Diagram.pdf



Contents

Hardware installation

The USB standard requires a 1.5 kΩ pullup resistor on D+, but this board is known to have a wrong value (R10 on the board). It ships with either a 10 kΩ resistor or a 4.7 kΩ resistor, but it should be replaced with a 1.5 kΩ resistor, or put an appropriate resistor value (e.g 1.8 kΩ) in between PA12 and 3.3V. It is also true that some PCs are tolerant of incorrect value so, before you change the resistance, you can try if it works in your case.



Software installation

A bootloader needs to be flashed using USB to Serial or ST-Link (SWD). See Flashing the bootloader

Follow the normal Installation guide.

Note that after first flashing the bootloader you may have to place the board into "perpetual bootloader" mode before you can upload a sketch; place a resistor between pin PC14 and 3.3V, and then reset the board. You should now be able to flash a blank sketch, remove the resistor, and restart the board, after which uploading new sketches should work as expected. If you find that the IDE successfully resets your board, but dfu-util complains about no DFU-devices being present you may have to edit the maple-upload script in tools-folder. Find the line where it calls upload-reset, and increase the value given to it.

Where to buy

eBay, AliExpress, etc.

128 KB flash on C8 version

The F103C8 ST microcontroller is declared to have 64 KB of flash, but virtually all the C8 microcontrollers tested have 128 KB of flash instead.

At least one exception was reported in the forum, so it is not guaranteed [[2] (http://stm32duino.com/viewtopic.php?t=1323&start=20#p18962)].

The STM32duino core have two uploading board settings, one for 64 KB and one for 128 KB. Also the integrated serial bootloader communicates at startup that are present 128 KB of flash.

- Bootloader message:

- Using Parser : Raw BINARY
- Interface serial_w32: 57600 8E1
- Version : 0x22
- Option 1 : 0x00
- Option 2 : 0x00
- Device ID : 0x0410 (Medium-density)
- - RAM : 20 KiB (512b reserved by bootloader)
- - Flash : 128 KiB (sector size: 4x1024)
- - Option RAM : 16 b
- - System RAM : 2 KiB

Additional notes

The name on the forum for these boards is a reference to the Matrix and comes from this thread on the forum (http://www.stm32duino.com/viewtopic.php?f=28&t=117&hilit=blue+pill). It's one of the cheap STM32F103 boards that can be found from Chinese retailers. It's currently very popular with retailers, and it costs about 2$.

Features

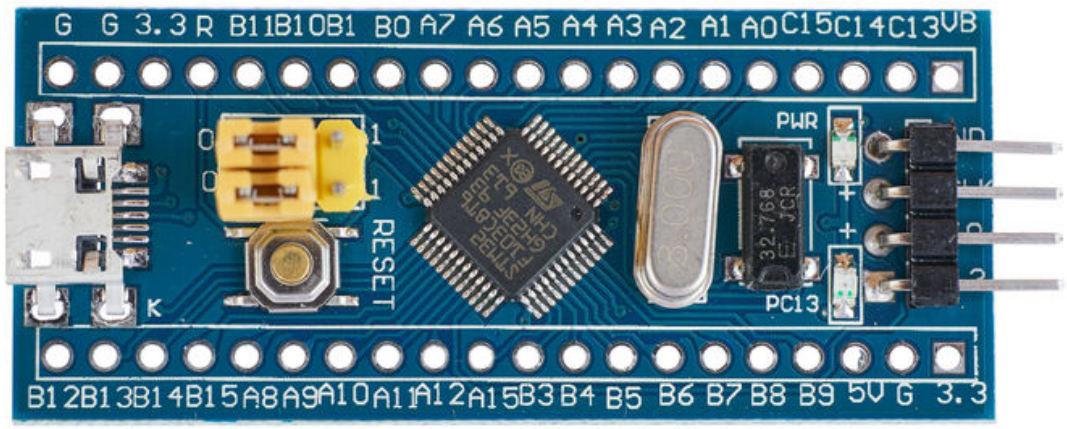
- ARM Cortex M3

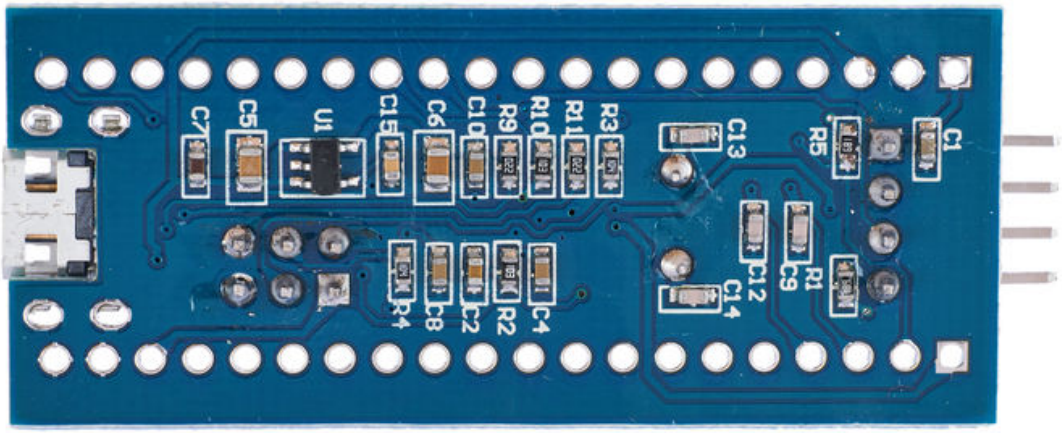
- 72 MHz
- 64 KB/128 KB Flash
- 20 KB RAM
- Reset button
- LED on PIN PC13
- 32 kHz Real time clock crystal
- Jump links on Boot0 and Boot1
- Micro USB connector for power and data
- ST-Link header on the top of the board.

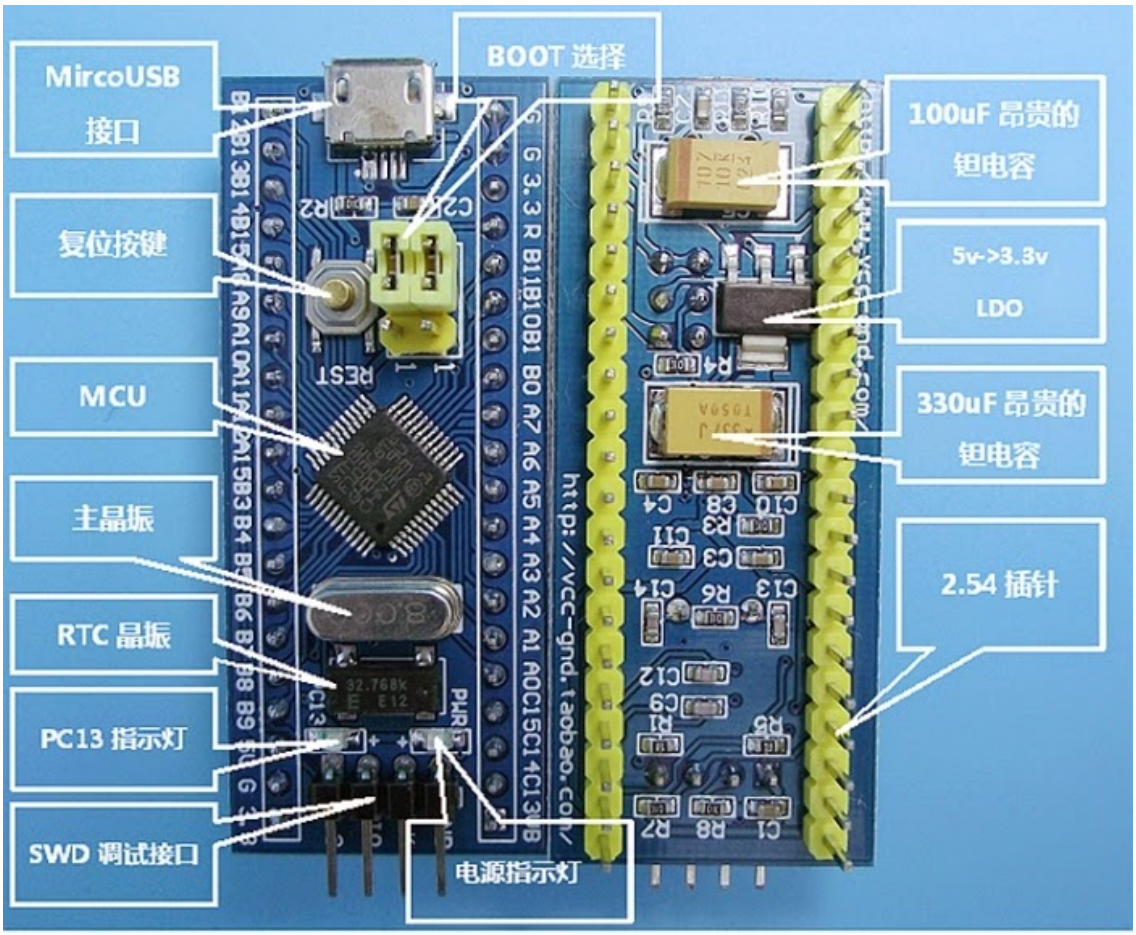
Known issues

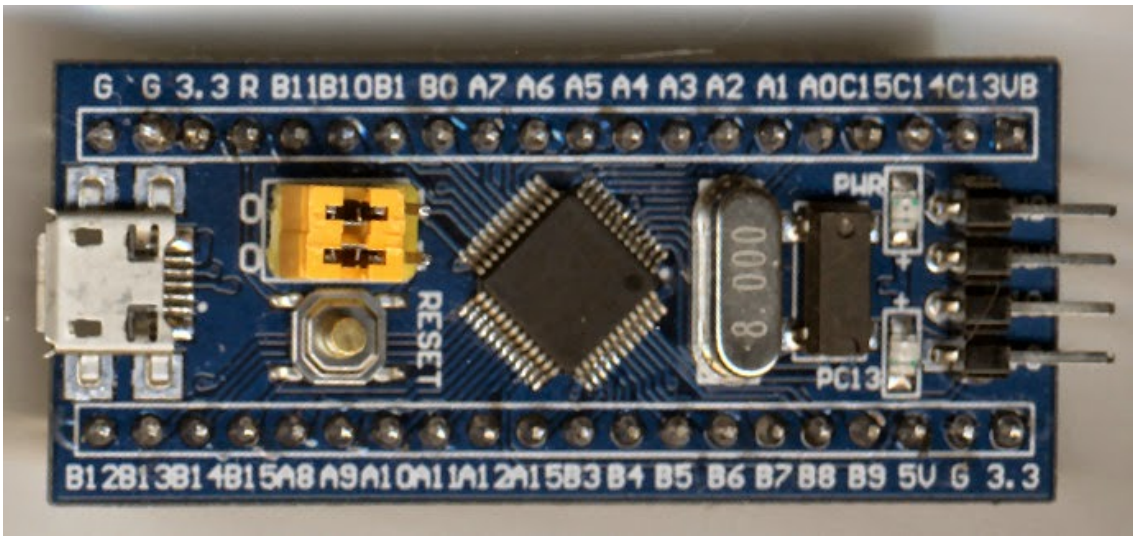
- The micro-USB connector is not soldered to the board very well and is easily broken. Then first weld the connector better and if you want can cover the connector in epoxy glue or hot glue. There are multiple versions of this board with different connectors. Refer to the pictures for examples.
- Analogue power and ground is connected directly to digital power and ground, which can cause additional noise on the ADC input.
- The reset button on some of these boards is very hard to press.

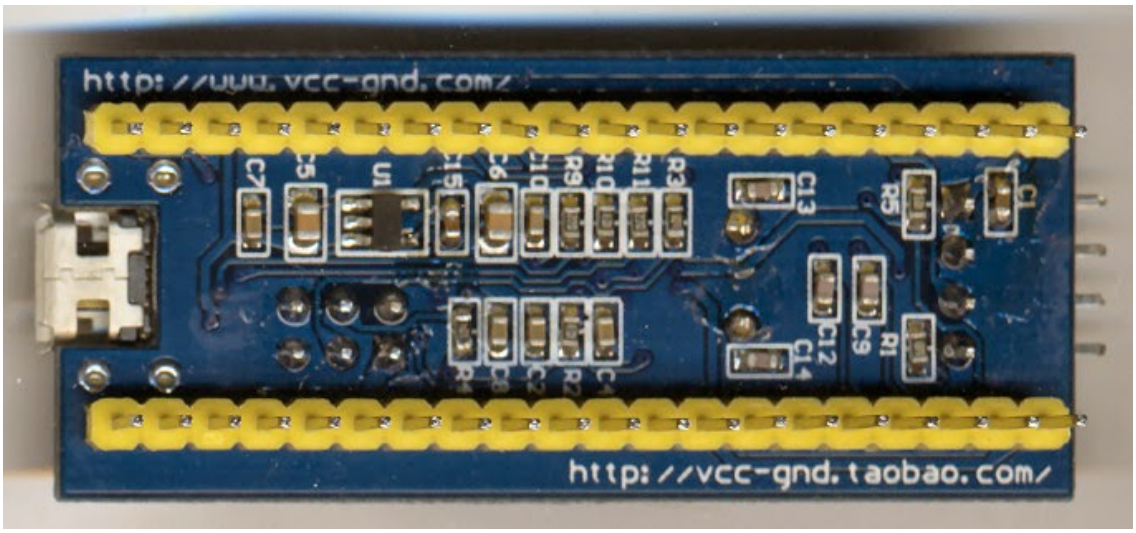
Other images

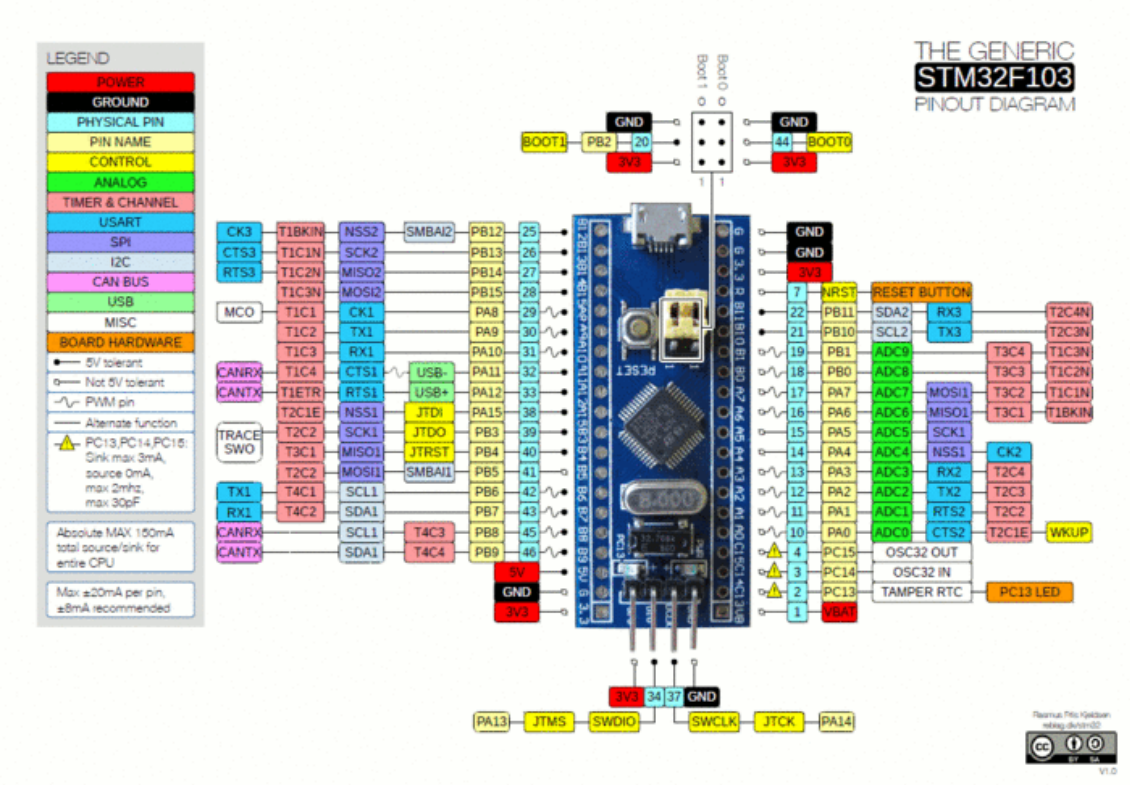


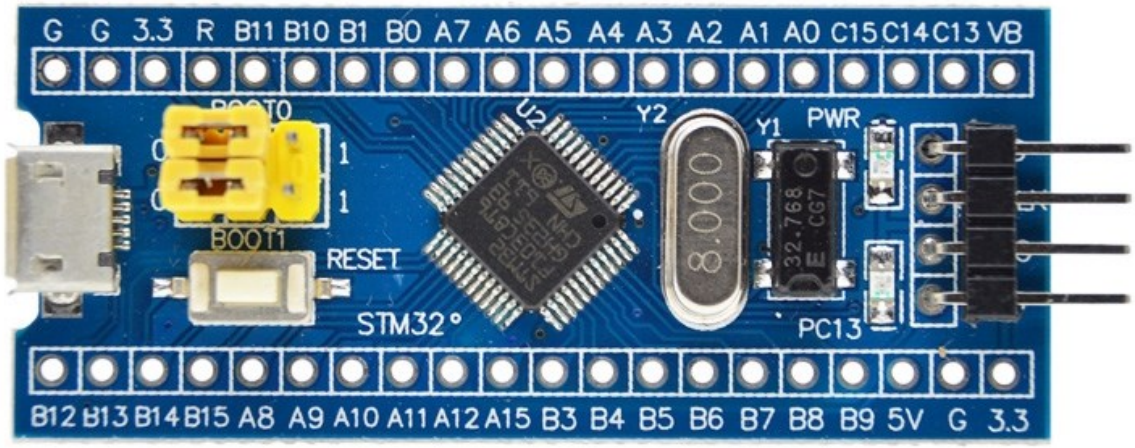



MircoUSB
接口
复位按键
MCU
主晶振
RTC 晶振
PC13 指示灯
SWD 调试接口
BOOT 选择
电源指示灯
100uF 昂贵的
钽电容
5v->3.3v
LDO
330uF 昂贵的
钽电容
2.54 插针


G G 3.3 R B11B10B1 B0 A7 A6 A5 A4 A3 A2 A1 A0C15C14C13VB
RESET
PWR
PC13
B12B13B14B15A8 A9 A10A11A12A15B3 B4 B5 B6 B7 B8 B9 5V G 3.3


http://www.vcc-gnd.com/
http://vcc-gnd.taobao.com/


LEGEND
POWER
GROUND
PHYSICAL PIN
PIN NAME
CONTROL
ANALOG
TIMER & CHANNEL
USART
SPI
I2C
CAN BUS
USB
MISC
BOARD HARDWARE
5V tolerant
Not 5V tolerant
PWM pin
Alternate function
PC13,PC14,PC15: Sink max 3mA, source 0mA, max 2mhz, max 30pF
Absolute MAX 150mA total source/sink for entire CPU
Max ±20mA per pin, ±8mA recommended
THE GENERIC
STM32F103
PINOUT DIAGRAM
Boot 1
Boot 0
BOOT1
BOOT0
GND
3V3
RESET BUTTON
NRST
SDA2
SCL2
RX3
TX3
OSC32 OUT
OSC32 IN
TAMPER RTC
PC13 LED
WKUP
TRACE SWO
SWDIO
SWCLK
JTMS
JTCK
JTDI
JTDO
JTRST
SMBAI1
SMBAI2
USB-
USB+
CANRX
CANTX
MCO



Category: Boards

- This page was last modified on 4 July 2017, at 11:49.