

Flashing STM32 using STLINK

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<i>Abstract</i> —This manual shows how to program an STM32 board using STLINK and Raspberry Pi. The procedure is the same for any Linux machine.		

1 COMPONENTS

The necessary components for this manual are listed in Table I.

Component	Quantity
STM32F103C8T6	1
Raspberry Pi 3	1
STLINK V2	1
Female-Female Jumper Wires	4

TABLE I

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2 SOFTWARE SETUP

Open a terminal and execute the following commands

```
cd ~
mkdir -p ~/sandbox
cd ~/sandbox
```

2.1 Install Necessary Packages

```
sudo apt-get install git
autoconf libtool make
automake texinfo pkg-config
libusb-1.0-0 libusb-1.0-0-dev
gcc-arm-none-eabi libnewlib-
arm-none-eabi telnet
```

2.2 Installing Openocd and Programming Environment

```
git clone git://repo.or.cz/
openocd.git
git clone https://github.com/
gadepall/STM32F103C8T6.git
```

2.3 Configure Openocd

```
cd openocd
./bootstrap
./configure
make
sudo make install
```

3 HARDWARE SETUP

Connect the STLINK to a USB port of the Raspberry Pi. The hardware connections between the STLINK and STM32 are available in Table II. See Fig. 1 as well for the *black pill* board. Fig. 2 shows the *blue pill* board.

STM32	STLINK
GND	GND
3.3V	3.3V
SWDIO	SWDIO
SWCLK	SWCLK

TABLE II

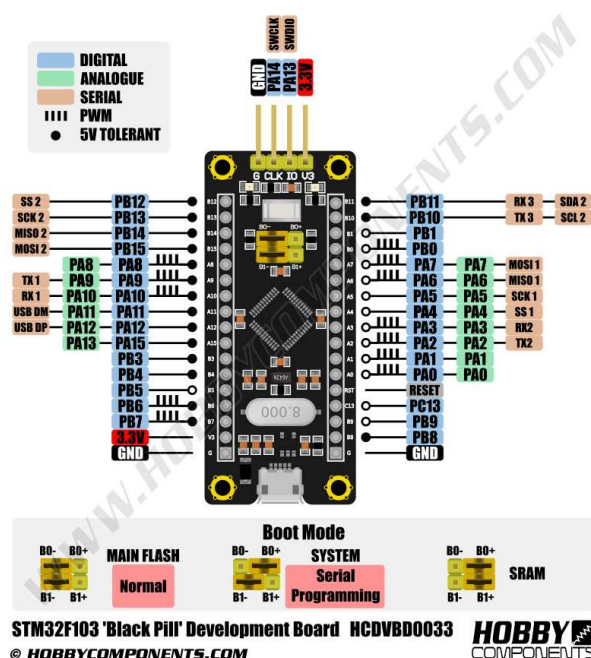


Fig. 1: STM32F103C8T6 Pin Configuration (Black Pill)

4 MAKE FILE AND FLASHING

1. Communicate with the STM32 board

```
cd ~/sandbox/openocd
```

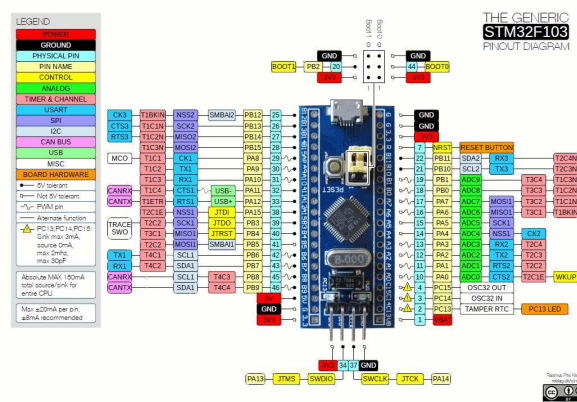


Fig. 2: STM32F103C8T6 Pin Configuration (Blue Pill)

```
sudo openocd -f /usr/local/
share/openocd/scripts/
interface/stlink.cfg -f
usr/local/share/openocd/
scripts/target/stm32f1x.
cfg
```

2. Open a new terminal and type

```
telnnet localhost 4444
```

This will establish a connection between the RPI and STM32

3. Open another new terminal and type

```
cd ~/sandbox/STM32F103C8T6
cp blink.c main.c
sudo make
cp main.bin cd ~/sandbox/
openocd
```

4. Make sure that the two pin caps (Boot0 and Boot1) beside the reset button are non-aligned.

5. Go to the telnet terminal

```
reset halt
flash write_image erase main.
      bin 0x08000000
reset run
```

6. Align the two pin caps beside the reset button. Press the reset button. You should see an LED blinking.
7. Modify `main.c` in the `STM32F103C8T6` directory to keep the LED on.