Flashing STM32 using STLINK

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Contents

***Abstract*—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

2 Software Setup

Open a terminal and execute the following commands

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```
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.

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

TABLE II

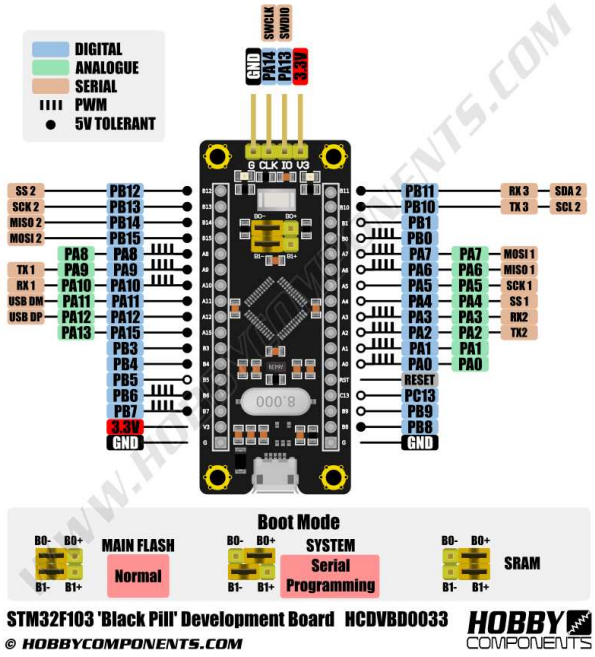

Fig. 1: STM32F103C8T6 Pin Configuration

4 Make File and Flashing

1. Communicate with the STM32 board

```
cd ~/sandbox/openocd
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

```
telnet localhost 4444
```

This will establish a connection between the RPI and STM32

3. Open another new terminal and type

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

4. Make sure that the two pin caps 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 the blinking part of the code in main.c in the STM32F103C8T6 directory as

```
 while (1)
  {
    /* Turn on led connected
       to PC.4 pin */
//    GPIO_SetBits(GPIOC,
   GPIO_Pin_13);
    /* Insert delay */
//    Delay(0xAFFFFF);

    /* Turn off led connected
       to PC.4 pin */
    GPIO_ResetBits(GPIOC,
       GPIO_Pin_13);
    /* Insert delay */
//    Delay(0xAFFFFF);
  }
```

and flash the .bin file to the STM32. What do you observe?