How to upload Firmware to stm32f407 boards

Giuseppe Callipo - ik8yfw

This tutorial show how to setup a complete configuration to upload firmware for stm32f407 (and similar) board.

The target items used for this setup are the following:



• STM32F407VET6 ARM STM32 Core Board Module



knowledged also as "Black VET6", these board are marked "STM32F4XX STM32_F4VE V2.0 1509" on the back.

To upload the firmware you need an ST-Link device connected to 407 module.



• ST-LINK V2 - Clone interface

To upload the firmware there is the STLink utility, you can download it from STM site: es.: <u>https://www.st.com/en/development-tools/stsw-link004.html</u>

STM32 ST-LINK Utility × File Edit View Target ST-LINK External Loader Help 💾 🕼 🖉 🕵 -Swv Memory display Device Device ID Address: 0x08000000 ~ Size: 0x0690 Data Width: 32 bits 🗸 Revision ID Flash size Device Memory File : TestCM4.hex LiveUpdate Device Memory 11:02:23 : Connection mode : Normai. 11:02:23 : Debug in Low Power mode enabled. 11:02:23 : Device ID:0x413 11:02:23 : Device flash Size : 512KBytes 11:02:23 : Device flash Size : 512KBytes 11:02:23 : Device flashly :STM32F405xx/F407xx/F415xx/F417xx 11:02:33 : [TestCM4.hex] opened successfully. 11:02:33 : [TestCM4.hex] ohecksum : 0x000234C7 11:03:04 : Memory programmed in 2s and 641ms. 11:03:04 : Verification...OK 11:03:17 : Disconnected from device. Discourse

• STM32-STLINK Utility

To load the firmware:

1) Open the RadioDSP_CortexM4.hex that you can download from https://github.com/gcallipo/RadioDSP-DNR-Stm32f407/tree/master/pre-compiled

to open select: File \rightarrow Open File ... and select the .hex file.

2) Attach the Board to STLink dongle and connect the dongle to USB port;

- 3) Connect the target: Target \rightarrow Connect
- 4) Progamm it: Target \rightarrow Program
- 5) Disconnect the target: Target \rightarrow Disconnect.

Connection Board to Debugger:

Here you can see the pin connector on the ST Link Dongle (on the left) and the JTAG connector Pin (on the right). You must connect each the pin each other using 4 female to female wires.

ST-Link V2 -Dongle		JTAG connector on the Stm32F407 board	
SWDIO	<>	Pin 7,	PA13/TMS/JTMS_SWDIO
GND	<>	Pin 4,	GND
SWCLK	<>	Pin9,	PA14/TCK/JTMS_SWCLK
3.3V	<>	Pin 1,	3V3

JTAG connector pinout (ON THE BOARD - Front) :

CODE: SELECT ALL

+----+ | 1 2| Pin 1 = 3v3 | 3 4| Pin 4 = GND | 5 6| _| 7 8| Pin 7 = SWDIO | 9 10| Pin 9 = SWCLK |_ 11 12| |13 14| |15 16| |17 18| |19 20| +----+

Connect ST-Link to usb port, making sure there are no other power sources connected to your board.



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