How to flash firmware to Artillery Ruby board

Tools:

Firmware compilation: Visual Studio Code, PlatformIO

Firmware upload: Pronterface, STM32CubeProgrammer

Procedure:

Step 1

Follow the guide at <u>https://marlinfw.org/docs/basics/install_platformio_vscode.html</u> to install PlatformIO with VSCode.

Step 2

Download the latest firmware at https://github.com/artillery3d/

Step 3

Extract the source file and put it in the root folder of C or D drive (DO NOT put in folders with space in the path).

Step 4

In PlatformIO, click on Open project and browse to the source code folder.





On bottom left of VSCode, click on PlatformIO:Build, PlatformIO will download the necessary files and compile the file. (It will take from a few minutes up to 30 minutes to download the necessary files for the first compilation, depends on the download speed of your internet connection, please be patience.)

You should see Success message when it compiled successfully.

Environment	Status	Duration
artillery_ruby	SUCCESS	00:00:30.325
=======================================		

Use Pronterface to connect to the printer, and send command M997 to put printer into DFU mode, screen should turn black.



Step 7

Opens up Device Manager, scroll down and expand Universal Serial Bus controllers, you should see a device named STM Device in DFU Mode or STM32 BOOTLOADER, proceed to Step 15 if you see STM32 BOOTLOADER.

Step 8

Download and install DfuSe Demo

Step 9

Open Dfu File Manager, choose I want to GENERATE a DFU file from S19, HEX or BIN files and click OK



Click on S19 or Hex... then browse to [location of firmware source code]/.pio/build/artillery_ruby and choose firmware.hex

🗊 DFU File	Manager (v3.0.6) -	Generation			_		<
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File <u>n</u>	ame: firmware.hex				~ hex	Files (*.hex) 🗸 🗸	
						Open Cancel	

Click on Generate... and choose where to save the generated file.

🛃 Save As						×
\leftrightarrow \rightarrow \checkmark \uparrow \square \Rightarrow Thi	s PC → Storage (D:) → Marlin-Hornet-m	aster > .pio > build > artiller	y_ruby			
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Step 12

Open DfuSe Demo

Step 13

Click on choose and browse to and select the generated DFU file, also, check the 2 boxes Verify after download and Optimize Upgrade duration

Available DFU Dev	rices			
STM Device in DF	U Mode	~	Application Mode:	DFU Mode:
Supports Upload Manifest Supports Download Accelera		Manifestation tolerant Accelerated Upload (ST)	Vendor ID:	Vendor ID: 0483 Procuct ID: DF11 Vervier: 2000
Enter DFU mode/	'HID detach	Leave DFU mode		
Actions				
Select Target(s):	Target Id	Name	Available Secto	ors (Double Click for more)
	00 01 02 03	Internal Flash Option Bytes OTP Memory Device Feature	6 sectors 1 sectors 2 sectors 1 sectors	
Upload Action File: Choose	. Uj	Upgrade or V File: Vendor ID: Procuct ID:	erify Action Targets in	file:
Transferred data size 0 KB(0 Bytes) of 0 KB(0 Bytes)		Version:	er download	
Operation duratio	n 10:00:00	Choose	. Upgrade duration (nem	e Venify

Click on Upgrade and wait till it's done. And the firmware should be upgraded on the board.

Step 15

Download and install STM32CubeProgrammer from <u>https://www.st.com/en/development-tools/stm32cubeprog.html</u>

You don't need to register but need to fill in a correct email address to receive the actual download link for the program.

It will install the necessary driver during the installation process.

Step 16

Open STM32CubeProgrammer after sending M997 to mainboard.

Step 17

Choose USB in the drop-down menu in the top right corner



Step 18 Select USB 1 in Port drop-down menu, then click on Connect

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STM32 Cube	2 V eProgrammer			fi 🕒 🎐 🔆 🏹
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	Device memory Open file +			USB 🗸 Connect
	Address 💽 👻 Size Data width 32-bit 👻	Find Data 0x	Read 🔻	USB configuration Port No DFU
OB				Serial number No DFU detected
CPU				VID 0x0483
swv				Read Unprotect (MCU)
	No data to display			
		Velecitore		Target information
	15:39:07 : STM32CubeProgrammer API v2.8.0	Live update verbosity level	A	Device
			8	Flash size _ CPU _ Bootloader Version _
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Step 19

Click on second button on the left then click on browse to select the firmware.hex compiled in Step 5.

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СРИ	Verify programming		VID 0x0483
swv	Run after programming		Read Unprotect (MCU)
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Step 20 Check Verify programming then click on Start Programming button

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STM32 Cube	Programmer	(()	1 🕨 🎽 🔆 🏹
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	Download	Erase flash memory Erase external memory	USB Connect
.	File path 🔹 Browse	Erase selected sectors Full chip erase	USB configuration Port No DFU
OB	Start addr 0x08000000 Skip flash erase before programming	Se Index Start Address Size	Serial number PID0xdf11
СРИ	Verify programming		VID 0x0483
swv	Run after programming Start Programm Automatic Mode Full chip erase ✓ Download file Option bytes commandsob	No sectors to display	Read Unprotect (MCU)
	Log 📃 L	ive Update Verbosity level 💿 1 🔵 2 🔵 3	Board _ Device _ Tune
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