STM32-Bootloader

Bootloader, External Flash Loader, OTA Firmwareupdate

Discription

This is my own little wiki on how to build a custom Bootloader for STM32 F446 Series of Microcontroller. This repo contains usefull links to other smart distributors on git-hub and youtube.

External Loader

How to write code to read and write an external Flash connected via SPI (later for advanced speed with Quad-SPI in single dual or quad mode). The ext. flash is supposed to store new firmware which the bootloader has to load to internal flash. There is a possibility to map external flash to STM32's internal flash address space. Maybe this could become handy. Refer to reference manual section 12.1 "memory-mapped mode: the external Flash memory is mapped to the device address space and is seen by the system as if it was an internal memory".

Mauro De Vecchi - External loaders for Standard SPI flash memories

ControllersTech - W25Q FLASH Memory Part 8 How to create an External Loader

ControllersTech - W25Q FLASH Memory Part9 External Loader in SPI Mode

ControllersTech - W25Q FLASH Memory Series

ControllersTech - YT W25Q Flash using SPI

STM32 MOOC - QSPI External Loader Series

Bootloader

Good easy going Tutorial

Viktor Vano - STM32 Bootloader using Blue Pill Board

Viktor Vano's github

General Understanding of STM32 Bootloader Theory

STM32 MOOC - How to Create a Super Simple Bootloader

Still to watch these ones

Worlds Simplest Bootloader :: Bare Metal Programming Series 4

STM32F7 (Cortex M7) Bootloader Tutorial Part 1 & 2 - Bootloader Introduction and Design for STM32

Good To Know

How Microcontroller Memory Works | Embedded System Project Series #16

STM32 MOOC - Boot and Startup

Firmware-Update OTA

Firmware Update over the air combines all the features discused so far. The binaries have to be transmitted throught e.g. wifi and stored in the flash. After, the device has to force reboot and bootloader does its job.

Git Commands

how to use multiple git accounts

how to show git config

Regular workflow using command line tool

```
git add .

git commit -m "whats new - my notes on this commit"

git push
```

Show basic informations

```
git status

gitk
```

Merge branches

```
git checkout destination-branch

git pull

git merge branch-that-has-newes-features

git push

git checkout back-to-working-branch
```

Undo changes

```
git restore
```