Exercise 3

1. Investigate project board

Look at the documents for the board you are considering for your final project (or any ST Discovery Board), draw the hardware block diagram for the board. For peripherals, note the communication paths (SPI, I2C, etc).

Look at the datasheet for the processor and other documents. Answer these questions:

- What kind of processor is it?
- How much Flash and RAM does it have? Any other memory types?
- Does it have any special peripherals? (List 3-5 that you noted as being interesting.)
- Does it have a floating point unit?
- If it has an ADC, what are the features?

Look at one application note for this processor.

Compile your answers into a google doc or markdown file, and send a link to the #assignment-submission channel on Discord. Make sure the files are publicly viewable.

Also, be prepared to share what you learned in Live Class.

Due Date: before live class on December 11th, 2021 at 9:00am PT

2. SPI Flash Test Code

Unfortunately, the SPI Flash we need to test the Key-Value storage system is on backorder. The KVStore only uses the read, write, and erase functions from the SPI Flash subsystem. Create a small simulator so you can test the KVStore. Write a test for your simulator that uses the read, write and erase functions.

Here is the SPI Flash information.
https://www.digikey.com/en/products/detail/winbond-electronics/W25Q80DVSNIG-TR/5154948

We are going to use ST's Standard Peripheral Flash Driver so here is the header file for the code you will need to simulate:
https://drive.google.com/file/d/12dw-pZiKiK1vi4gv49W1x6np5uzCH_cV/view?usp=sharing

Your assignment is to create a small module that compiles and runs on your computer that implements your flash simulator. You will also need a main file to test out your simulator.

Important notes: You don't need a full Flash simulator, only what is necessary to test the KVStore code. You aren't writing the KVStore code. You do not need to use CPPUTest or other unit test framework. If you are writing more than 50 lines of code, you are going in the wrong direction.

Turn in two source files (simulator and main test), and send a link to the #assignment-submission channel on Discord. Make sure the files are publicly viewable.

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