KU LEUVEN

FACULTY OF ENGINEERING TECHNOLOGY

Electronics-ICT. Group T

Computer architectures

Addenda and corrections

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Table of Contents

1 Purpose

This document consolidates remarks and corrections that came up during the lab sessions in this academic year. If relevant, they will be incorporated into the next version of the main document.

2 Error

On page 9/19: … you must include the stm105c6.inc line yourself in every …

The file name is wrong: it must be: #include "stm8s105c6.inc".

3 STVD

3.1 GDI / DAO error

When you are in the lab and you connect the debugger for the first time following problem might occur.

STVD Connection error (usb://usb): gdi-error [40201]: can't access configuration database

What to do:

- Launch cmd in administrator mode
  - Click in the bottom left corner on the Windows Logo and type cmd.
  - Right click on the item Command prompt and choose "Run as administrator"
  - Copy and paste the following lines. (each line separately + confirm with the return key)

```
Regsvr32 /u "C:\Program Files (x86)\Common Files\Microsoft Shared\DAO\DAO350.DLL"

Regsvr32 "C:\Program Files (x86)\Common Files\Microsoft Shared\DAO\DAO350.DLL"
```

3.2 EOF error

EOF error (Fatal 4: Illegal Source EOF 'EOF')

Cause: you deleted the enter/carriage return after the keyword "end" .

Solution: Insert a new line after the last line in the file.

4 Push pull – Open drain

- https://open4tech.com/open-drain-output-vs-push-pull-output/
- Push pull :
  - Can source current (the pin outputs current)

- Can sink current (current flows into the pin)
- Cannot be connected in parallel

- Open drain
  - Can only sink current
  - Can be connected in parallel

5 Draw a flowchart.

6 Pull up resistor

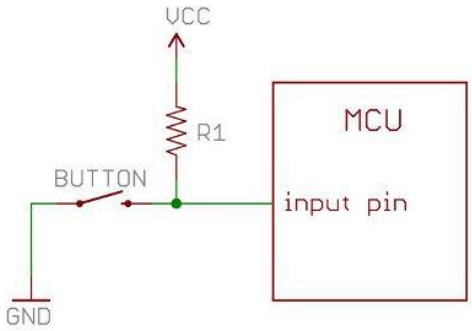

Figure 1: Pull up resistor.

If 'Button' is open, input may not be floating

Further reading:

https://learn.sparkfun.com/tutorials/pull-up-resistors/all

7 Generated code

A lot of code in the main_x files is generated by STVD. At the moment, you do not understand this code. So leave it.

Some parts of the code could be deleted, but other parts cannot.

8 Startup code

Your startup code MUST GO just BEFORE the infinite_loop.

- Short explanation: because we want it.
- Scientifically justified: if you put your code in the beginning of the file, the generated code may overwrite your code.

9 Your labels and subroutines

Must go AFTER the infinite_loop. Be the computer for a minute and try to understand why.

10 Flowcharts

Implementing if-then-else and all kinds of loops in assembler requires some experience. Flowcharts help to order your thoughts so that you understand the problem better and also gain insight in the working of the MCU.

11 The delay loop

On my board, the delay loop generated a delay of 100 ms. I toggled a LED between on/off state with the BCPL (bit complement) statement: 100 ms on 100 ms off. Period = 200 ms (5 Hz)

Figure 2: Margaret Hamilton