Fall 2020-2021
EEE212-01 Lab 3
Interrupts
Due on 16.12.2020 11:20 am

In this lab, you are going to implement a programmable frequency divider as follows:

You will receive a square wave CLKIN $s(t)$ with a frequency f_s from (INT1) port. After the initialization, you will configure the divider by typing a number $n \in \{2, 3, \ldots, 9\}$. Display the divider number n on the LCD screen. Then, generate a signal $s'(t)$ from Port 3.0 that has frequency:

$$f_{s'} = \frac{1}{n} \times f_s$$

An example of that can be seen below:

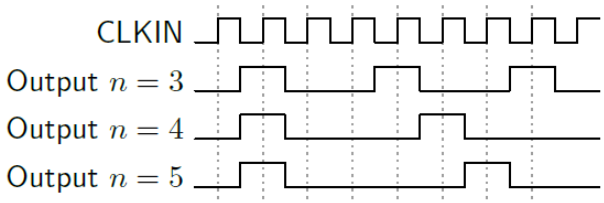

Figure 1: Example timing diagram for inputs $n = 3, 4, 5$

Output signal $s'(t)$ should track the CLKIN $s(t)$ at all times as frequency and duty cycle of CLKIN can change during operation. Your implementation should only rely on high-to-low transitions.

Hint: Your output do not need to have the same duty cycle as the input.

Notes

- In order to prove that you use interrupts, you should place a 'SJMP $' at the end of your code that your program counter stays until an interrupt is received.
- This is an individual lab. You can cooperate but you have to write your **OWN** code. Any kind of plagiarism will not be tolerated.
- The deadline is strict. Submit your code before the deadline.
- While submitting your code, please remove the part where the code of "keypad.asm" is used.