

Laboration 3

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1. Introduction

This report is mainly about the assignment of Lab3, which is required to write some application of AVR Butterfly and used TinyTimber. Source code with comments is in lab3.1.c, lab3.2.c files. All functions are tested and executable.

2. Answer the questions

Question 1: Write an application that can both print prime numbers and play Diana. You will notice that as the calculation of the next prime number takes more and more time, the melody gets depredated. Modify the reactive object that produces tones to use a deadline when scheduling a change in the piezo element (use `WITHIN` instead of `AFTER`). Can you hear the difference? Explain why this is so (you can say that you are hearing the scheduler!).

Answer 1: Yes, we can hear that the music would be interrupted. Two processes (1.calculation of the primes; 2.play the music of Diana) are running asynchronous. With the prime become bigger and bigger, time of calculation for prime would be increasing, and the CPU is occupied by this processes. At the same time the second processed can't preempt the CPU, it should wait for the prime process finished, that means it cannot sound. So the music sound like interrupted.