Milestone 1 Report

ACE411-Embedded Microprocessor Systems

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STK500 configuration

Microchip configuration - Compilation process

Since the code is written using the C++ language (using newer standards than the supported from Microchip Studio), some modifications should be done to the default settings of a new C++ project.

Firstly, add the symbol "AVR" to the compiler's symbols:

IMAGE 1

Secondly, add the flag "-std=c++17" to the compiler's flags:

IMAGE 2

The optimization level should be set to "-O2 (Optimize more).

Finally, the SIMULATION_MODE should be defined (by uncommenting the line 25 of main.cpp). When it is defined, the program will read from TCNT2 instead of UDR and will redi-rect its output from UDR to TCNT0. By doing that, the program can be simulated with the provided stimuli files.

Description of the program

The sudoku solving algorithm

TO BE COMPLETED BY ANDREAS

Controlling the LED progress bar

by elioudakis

UART

by elioudakis

Resource usage

Program memory (flash)

Static RAM (SRAM)

Simulation in Microchip Studio, using stimuli files

X stimuli files are submitted with the code:

- a, which feeds the program with one sudoku board (the one shown in the assign-ment), waits until the sudoku is solved and sends the results back.

- a, which feeds the program with the same sudoku board as above, but while solving, a "break" command stops the solving process, and using the "debug" command, the contents of some cells are read.

- a, which feeds the program with two sudoku boards, one after another. After solving the first and sending back the results, a "clear" command is executed and then the grid is filled with the second sudoku, it is solved and the results are sent back to the serial port.

Testing the code on real hardware (STK500)

Using PuTTY

Using the interface program developed by Odysseas Stavrou