1st Assignment in the Course "Microprocessors"

2023-2024

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The project is individual and should be implemented in x86 (16-bit) assembly language. The implementation should be done on the emu8086 emulator.

First Project - Inclusive Prefix Sum (2 units)

First define in the Data Segment a one-dimensional table of type WORD with 6 elements and initial values of your choice. Then you need to create a second table (first output table). The goal is to write x86 assembly so that the second table contains the elements of the first table inverted (i.e., the first element of the first table is the last element of the second table, the last element of the first table is the first element of the second table, etc.).

Then create a third table (second output table) which will take values according to the inclusive prefix sum algorithm. The inclusive prefix sum is an operation on tables in which the element with index i in the output table is obtained by summing all the elements of the input table up to the element with index i. For example, if we have as input table A=[2,4,1,5], the output of the inclusive prefix sum will be table B=[2,6,7,12].

At the end the program should print all 3 tables. The printing of the tables should be done with direct access to the video memory of the system and each element of the tables should be displayed with a different background/foreground colour.

Deliverables

The deliverables of the projects will be the Assembly code with sufficient comments (about 60% of the code should be comments).

Delivery Date

13 December 2023. Then the next project will be given.

Scoring method

The project is not compulsory. It corresponds to 20% of the final grade.