Lab Experiment #01 Leaflet

Memory Transfer Operations in 8086 Emulator Software

October 22, 2024

1 Objective

- Become familiar with memory transfer operations in 8086 emulator software.

2 Lab Work

In this lab experiment, you will write a program that performs the following tasks:

- Define a variable N with an initial value of 5 (the value of N will be given during the lab session and will be less than 256). Define a variable M with an initial value of 3 (the value of M will be given during the lab session and will be less than 256).
- Perform memory transfer operations in the data segment (DS) with the starting address changing to 2000h.
- Initialize the memory starting from address DS:[2000h] with values of consecutive integers starting from 1 using a loop with a counter of N. After M iterations value of N should be doubled.
- Sum up N integer values and store the result at DS:[2000h + N].

  Example for $N = 5 \& M = 3$:

  - DS:[2000h] → 01H
  - DS:[2001h] → 02H
  - DS:[2002h] → 03H
  - DS:[2003h] → 06H
  - DS:[2004h] → 07H
  - DS:[2005h] → 13H (sum of 5 values from DS:[2000h] to DS:[2004h])
- **Bonus:** Print each value and the result using the provided print function (You may modify registers to your liking).

```
mov cx, 8
print: mov ah, 2    ; print function.
       mov dl, '0'
       test bl, 10000000b  ; test first bit.
       jz zero
       mov dl, '1'
zero:  int 21h
       shl bl, 1
       loop print
```

3 Evaluation

You will be evaluated based on your lab performance.