

COS 335 Spring 2011 Assignment 8
Due Thursday April 21

My advice is to do this assignment while the material is fresh in your mind (easy 10 points!). It's much easier than waiting until the night before it's due, when you most likely will have forgotten much of the material. You can get the correct answers and check ALL of your work except #4 with debug so there's no reason not to get full credit.

Since you can get the correct answers directly from debug, you must show your work--i.e., show each step of the decoding or the construction of the machine instruction.

1. (4 pts) Decode the following instructions, showing your work (in other words indicate the meaning of each bit field or byte). Obviously you can check your work with DEBUG. Credit will not be given for answers where work is not shown.

- a. 36 81 0E 80 01 A1 01
- b. F6 DD
- c. D2 15
- d. BB 02 00
- e. 91
- f. 22 50 1A
- g. FE 46 FE
- h. C7 06 4E 40 43 35

For questions 2 and 3, submit DEBUG screen dumps proving the correctness of your encodings. Credit will not be given for answers where work is not shown. Note: all numbers are in hex.

2. (4 pts) Encode the following instructions, showing your work:

- a. `cmp cx,[bp+di+0ch]`
- b. `and word ptr cs:[13CEh],55h`
- c. `push es`
- d. `cmp al,41h`
- e. `neg word ptr[si+3ABh]`
- f. `adc dx,si`
- g. `cmp word ptr [bx+4],0F0C0h`
- h. `xchg ax,bp`

3. (1 pt) Find different encodings for 2b, 2d, and find 2 different encodings for 2h

4. (1 pt) Encode the following 32-bit instructions:

- a. `mov [eax],ecx` This is a 2 byte mod 00 instruction
- a. `add [ebx],[esi+4*ecx+10h]` This is a 4 byte mod 01 instruction
with SIB byte