

CSCI 3130

Homework 2

Due: Feb. 2, 10:00 PM

1. (3 points) List three logic instructions for x86_64 assembly.

AND JE CMP

2. (1 point) What x86_64 assembly instruction is used to perform an unconditional jump?

JMP

3. (1 point) What x86_64 assembly instruction is used to compare the contents of two registers?

CMP

4. (2 points) What is the two's complement of 00010011_2 ?

11101100
+1

5. (2 points) What is the decimal value of the signed integer 11101101_2 ?

-19_{10}

00010010
+1
 00010011

$16 + 2 + 1 = +19$

6. (3 points) Convert the octal number 2701_8 to binary, hexadecimal, and decimal.

Binary: 010111000001_2

decimal: $1024 + 256 + 28 + 64 + 1 = 1473_{10}$

hexadecimal: $5C1_{16}$

7. (3 points) Convert the decimal number -2003 into binary, octal, and hexadecimal.

$2003 \Rightarrow 1111010011 \Rightarrow 00000101100$

$2003/2$ 1
 $1001/2$ 1
 $500/2$ 0
 $250/2$ 0
 $125/2$ 1
 $62/2$ 0
 $31/2$ 1
 $15/2$ 1
 $7/2$ 1

$3/2$ 1
 $1/2$ 1
 -2003_{10}

Binary: 10000010110_2

Octal: 4055_8

hexa: $82D_{16}$

-decimal

$8 + 4 + 1$