

CSE 30: Computer Organization and Systems Programming

Discussion on Lectures 2 and 3

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How much memory can a machine with a 32-bit address space support

- A. 2GB
- B. 4GB
- C. 16GB
- D. 8MB

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In sign and magnitude, we will be able to represent _____ in one byte

- A. -63 to 63
- B. -127 to 127
- C. -128 to 127
- D. -255 to 255
- E. 0 to 255

In sign and magnitude, we will be able to represent _____ in one byte

A. -63 to 63

B. -127 to 127 $-(2^{(N-1)}-1)$ to $(2^{(N-1)}-1)$, $N=8$

C. -128 to 127

D. -255 to 255

E. 0 to 255

What is the range of numbers we can represent in 2's complement format using N bits

A. -2^{N-1} to 2^{N-1}

B. -2^{N-1} to $2^{N-1} - 1$

C. $-(2^{N-1}-1)$ to $2^{N-1}-1$

D. -2^N to 2^N

What is the range of numbers we can represent in
One's complement format using N bits

A. -2^{N-1} to 2^{N-1}

B. $-2^{N-1} - 1$ to $2^{N-1} - 1$

C. $-(2^{N-1}-1)$ to $2^{N-1}-1$

D. -2^N to 2^N

Two's Complement: $1101_2 = ?_{10}$

A. -2

B. -3

C. -4

D. -5

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$$00000200_{16} + \text{FFFFFFFF}_{16} = ?_{16}$$

A. 000001FF

B. 000002FF

C. FFFFFFFDFF

D. FFFFFFF1FF

$$00000200_{16} + \text{FFFFFFFF}_{16} = ?_{16}$$

A. 000001FF

B. 000002FF

C. FFFFFFFDFF

D. FFFFFFF1FF

Will $0111111_2 + 00000101_2$ result in overflow?

A. Yes

B. No

C. It depends

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A. Yes

B. No

C. It depends – If it's a signed representation then there is overflow -carry in different from carry out or addition of 2 positive numbers is negative

Subtract using 2's complement 16 bit
representation: $204_{10} - 46_{10}$.
what will the NZVC flags be?

A. N=0, Z=0, V=0, C=0

B. N=0, Z=0, V=0, C=1

C. N=0, Z=0, V=1, C=1

D. N=0, Z=0, V=1, C=0

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What factor differentiates the following categories of data

1. Global and static
2. Local variables
3. Dynamic Variables

- A. Scope
- B. Lifetime
- C. Representation
- D. Scope and Lifetime

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A. Scope

B. Lifetime

C. Representation

D. Scope and Lifetime

The following code tries to append a string s1 to another string s2. Does it work as expected?

```
char* append (char s1[ ], char s2[ ])
{
    int s1len = strlen (s1);
    int s2len = strlen (s2);
    int k;
    for (k=0; k<s2len; k++)
    {
        s1[k+s1len+1] = s2[k];
    }
    return s1;
}
```