

ICS作业2答案

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1

value	Two's complement
37	00100101
-15	11110001
85	01010101
-86	10101010

2

expression	Binary Representation
us	1101
ui	1100 1100
us << 1	1010
i >> 2	1111 0011
ui >> 2	0011 0011
(short) i	1100
(int) s	1111 1101

3

```

/* Determine whether arguments can be added without overflow
 * This function should return 0 if arguments x and y can be added without causing overflow
 */
int uadd_ok(unsigned x, unsigned y) {
    unsigned sum = x + y;
    return sum < x;
}

```

附:

$$(a) \quad 1 \cdot 37 = 32 + 4 + 1 \rightarrow 00100101_2$$

$$(b) \quad (-15) \quad 15 = 00001111_2 \rightarrow 11110001$$

$$(c) \quad \overline{01010101} = 01 + 4 + 16 + 64 = 85$$

$$(d) \quad \overline{10101010} = -128 + 32 + 8 + 2 = -86$$

$$2. \quad S = 3 \quad \} = 0011_2 \quad \xrightarrow{S=} \rightarrow -3 = 1101_2$$

$$\rightarrow uS = 1 + 4 + 8 = 13 = 1101_2 \quad \text{short}$$

$$52 = 00110100_2 \rightarrow -52 = 1100\overline{1100}$$

3. 溢出 \rightarrow $x+y$ 比 x, y 都减少 $\rightarrow \text{sum} < x \parallel \text{sum} < y$
 $\text{return sum} < x;$