

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：

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

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

$$(c) \underbrace{01010101}_{\sim} = 2^1 + 4 + 16 + 64 = 85$$

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

$$2. \quad s = \pm 3 \quad \} = 0011_2 \rightarrow -3 = 1101_2$$

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

$$5_2 = 00110100_2 \rightarrow -5_2 = 1100\boxed{1100}$$

$$3. \quad \textcircled{溢出} \rightarrow x, y \text{ 被 } x, y \text{ 都减去} \rightarrow \text{sum} < x \quad \text{if } \text{sum} < y \\ \text{return sum} \cdot x;$$