Basic Bitwise

bic: $a \,\&\, \overline{b}$

a	b	&	|	^	b|c
0	0	0	0	0	0
0	1	0	1	1	0
1	0	0	1	1	1
1	1	1	1	0	0

a = 0 0 1 1

& 0 1 0 1

b = 0 0 0 0

1 0 1 1

c = 0 1 1 0

add

sub

mov

and (&)

orr (|)

eor (^)

bic

lsr

lsl

cmp

⑧ advanced Bitwise Operations sequence

```
int a=26
int b=22
```

r1, r2 → a, b

```
bic r0, r1, r2
eor r2, r2, r0
and r0, r0, r2
```

26 → 1A → 0001 1010

22 → 16 → 0001 0110

r1 bic r2

```
  0001 1010
bic 0001 0110
-------------
r0= 0000 1000
```

r2 00010110

r0 00001000

eor ————————

r2 = 00011110

00001000

and 00011110

————————

r0: 00001000

→ 08

→ 8

⑨ least signiticamt

右边

32-bit r3. persone least

7 bits

1 1 1 1 1 1 u . . - . . persve

orr 0 | orr D

(10) Bitwise Manipulation with Arithmetic

r2: 0x51 → 81

r3: 0x95

r4: 0x15

add r4, r2, 88

(81)

81 + 88 → 169

169 → A9

(10), 2

64+13 A 10 C 12 d
B 11

r5: 0x4d

d 13

r1: 0xfd

r7: 0x57

84

add r7, r5, 202

77+202

=279 > 255

exceed.

202

01001101

202
↓

CA

11001010

12
101 | 202
42
32

  01001101
+ 11001010

~~1~~00010111

去掉超出的

10.3　0xb2 − 102

0xb2 − 0x66

  10110010
− 01100110

↓

  10110010
+ 10011010

~~1~~01001100

→ hex 4C

$01100110 \xrightarrow{2\text{'s compm}} 10011001 + 1$

$$\begin{array}{r} 10011001 \\ + \qquad\quad 1 \\ \hline 10011010 \end{array}$$

(11)

r5: 0x 0b

rq: 0xde

r4: 0x04

r10: 0x 8b = 10001011

↓ 2's compme-

01110100

+1

sub r1, r4, r10 | 01110101 |

r5: 0000 1011
r9: + 1101 1110

r4: 1110 1001
+ 0111 0101

~~1~~0101 1110

5 e

4

14