Monitoring & Control - Low Level Instructions

Sunday, 24 January 2021 1:04 PM

Bit Shifting:

LSL #n

LSR #n

LSL	#n
opcode	operand

50	~~12~~ 48

LDD 50
LSL #2
STO 50
END

ACC
12
48

$2^4 = 16$ → 0–15

	8	4	2	1	
	0	1	1	0	6
1)	1	1	0	0	← 12
2)	1	0	0	0	8

Integer { 6/2 0110 → 6
3/2 → 0011 3
1 → 0001 1

Set 0 → 1 (OR)

Clear / Reset 1 → 0 (AND)

Flip / Toggle 0 → 1, 1 → 0 (XOR)

2's Compliment (Humans)

+4 00000100

−4 11111100

1's Compliment

+4 00000100

11111011 Flip

00000001 Add 1

−4 11111100

Bit Mask:

Bitwise: bit by bit right to left.

	01100101
OR	11110000 → Bit Mask
	11110101

Set

	00000000
OR	00010100
	00010100

Reset

AND	11101111
	00000100
XOR	11111111
	11111011

1's Compliment:

35	−4
36	4

LDD 35
XOR #B11111111
#&FF
#255
INC
STO 36
END

Den. ACC	Bin. ACC
252	11111100
3	00000011
4	00000100

+4 00000100

−4 11111100 ✓

A = 65

a = 97

Diff. 32

	7	6	5	4	3	2	1	0
	128	64	32	16	8	4	2	1
A	0	1	0	0	0	0	0	1
a	0	1	1	0	0	0	0	1

50	~~C~~ c

LDD 50
OR #32
STO 50
END

Bin. Acc	Den. Acc.
01000011	67
00100000	
01100011	99

OR #32

OR #B00100000

OR #&20

60	~~b~~ B

LDD 60
AND #223
STO 60
END.

Bin. Acc.	Den. Acc.
01100010	98
11011111	
01000010	66