Corrigé Alois Soub Sys Prog A 4.11.2015

ex II

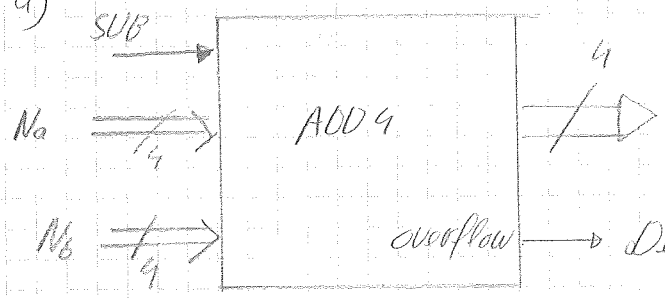
2) Add_Sub 4 bit

calcul A - B

$A - B = A + C_2(B)$

$= A + \underbrace{C_1(B)}_{\text{not } B} + 1$

a)



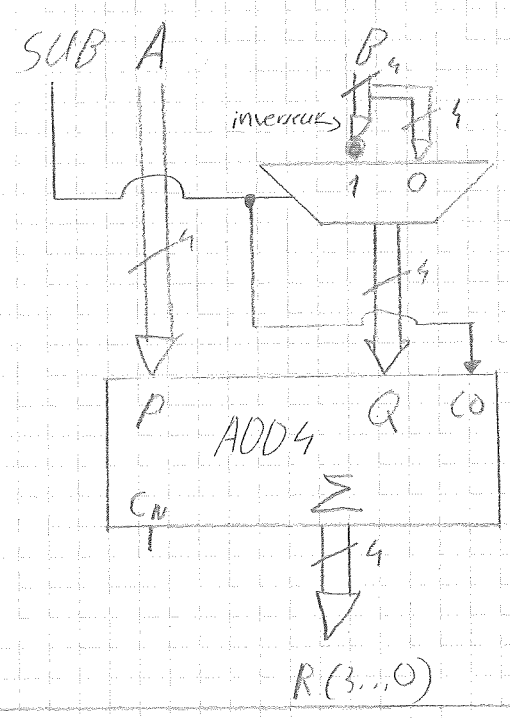
b)

SUB	Oper	entrées ADD4 P	Q	Co
0	A+B	A	B	0
1	A-B	A	not B	1

$C_0 = SUB$

utiliser un Mux

c)



3)

C(i)	B(i)	A(i)	C(i+1)	S(i)	overflow
0	0	0	0	0	0
0	0	1	0	1	0
0	1	0	0	1	0
0	1	1	1	0	1
1	0	0	0	1	1
1	0	1	1	0	0
1	1	0	1	0	0
1	1	1	1	1	0

Cn-1 Cn

Cn-1	Cn	Over
0	0	0
0	1	1
1	0	1
1	1	0

$C(n-1) \oplus Cn = Over$

multiplication par 10

a) $Nbra * 10 = 0\ 0\ N_3\ N_2\ N_1\ N_0\ 0$ b)

$Nbra * 1000 = 0\ N_3\ N_2\ N_1\ N_0\ 0\ 0\ 0$

Cn | $N_1\ N_2\ 0$

R7 ..... R0

$R_{max} = N_{max} * 10$

$= 15 * 10 =$

$= 150$

↳ il faut 8 bits