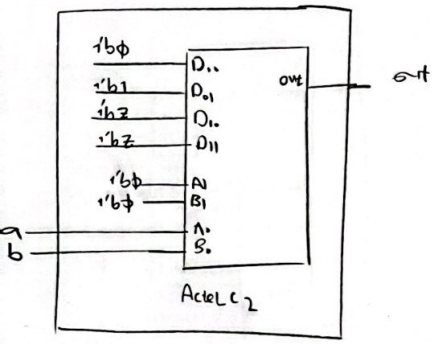
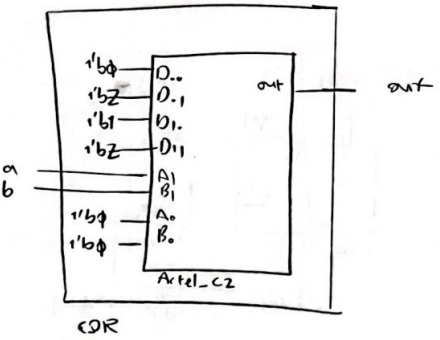
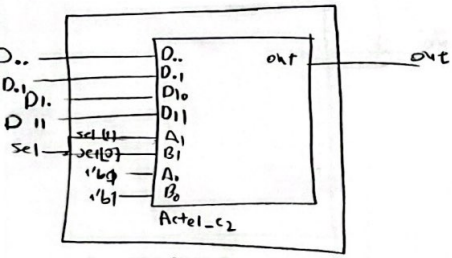


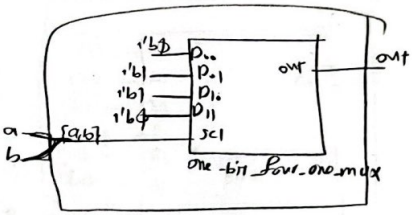
C_And



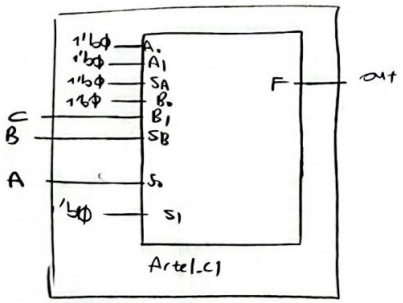
CDR



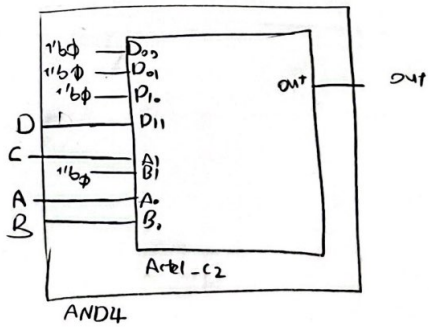
One_bit_four_to_one_mux



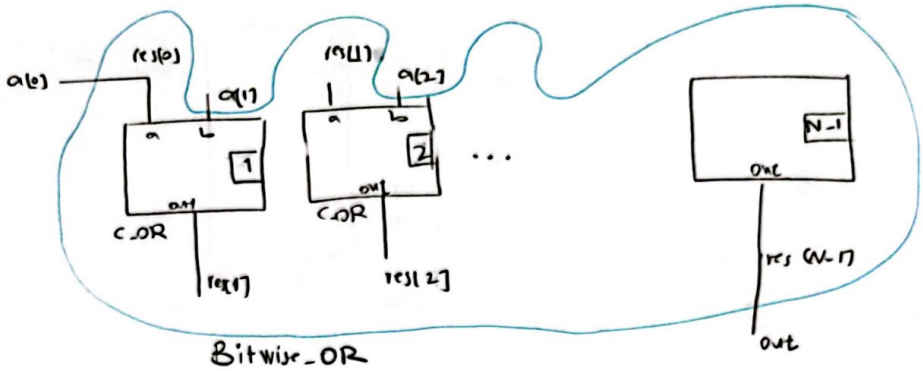
C_xor

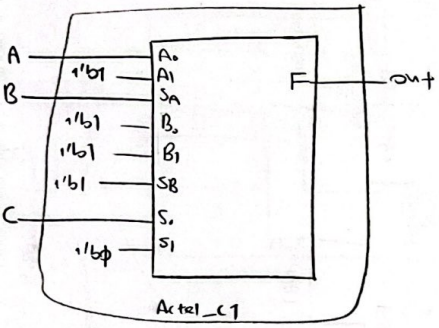


AND3

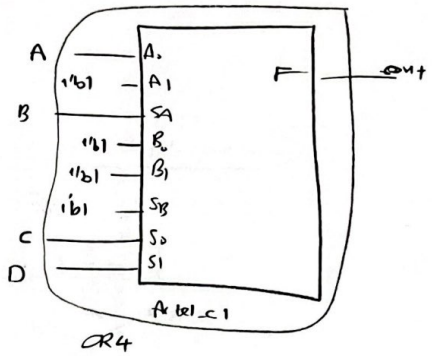


AND4

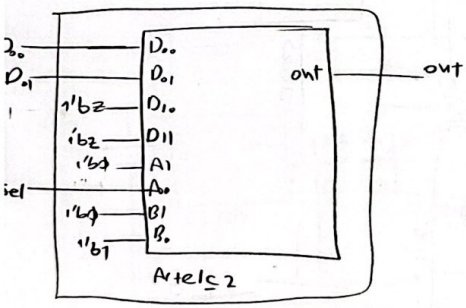

a[0]
res[0]
a[1]
a
b
1
out
COR
res[1]
res[1]
a[2]
a
b
2
out
COR
res[2]
...
N-1
out
res[N-1]
out
Bitwise_OR



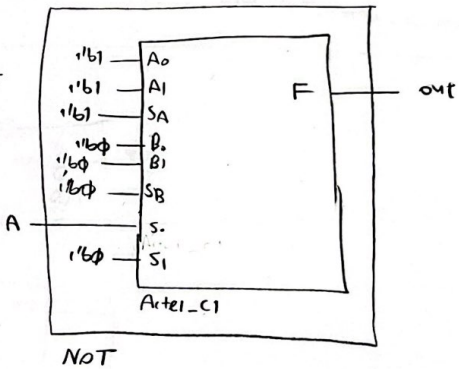
OR3



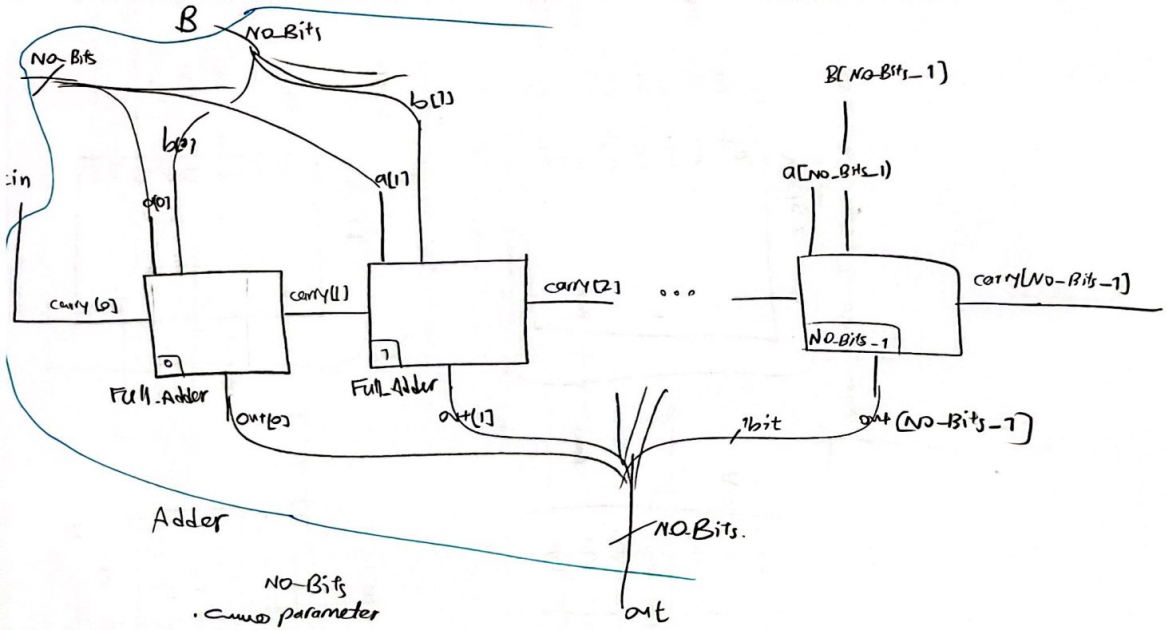
OR4

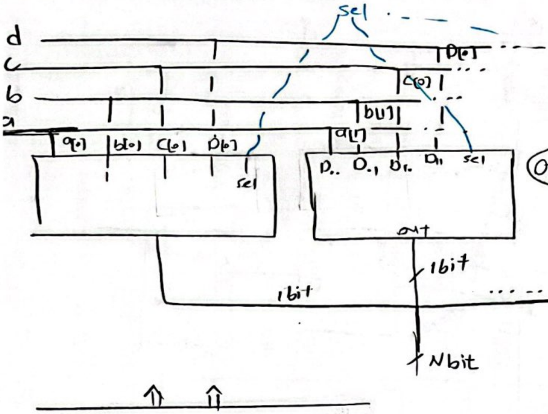


one_bit_two_to_one_mux



NOT


B
NO_Bits
NO_Bits
b[1]
b[0]
a[1]
a[0]
cin
carry[0]
carry[1]
carry[2]
...
B[NO_Bits-1]
a[NO_Bits-1]
carry[NO_Bits-1]
NO_Bits-1
0
1
Full_Adder
Full_Adder
out[0]
out[1]
1bit
out[NO_Bits-1]
Adder
NO_Bits.
NO_Bits
· const parameter
out



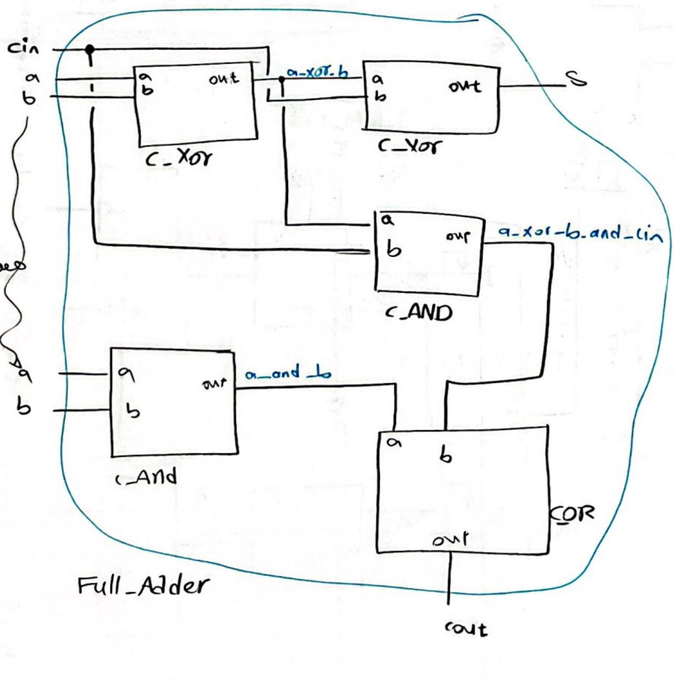
One; bit_four_to_one_mux

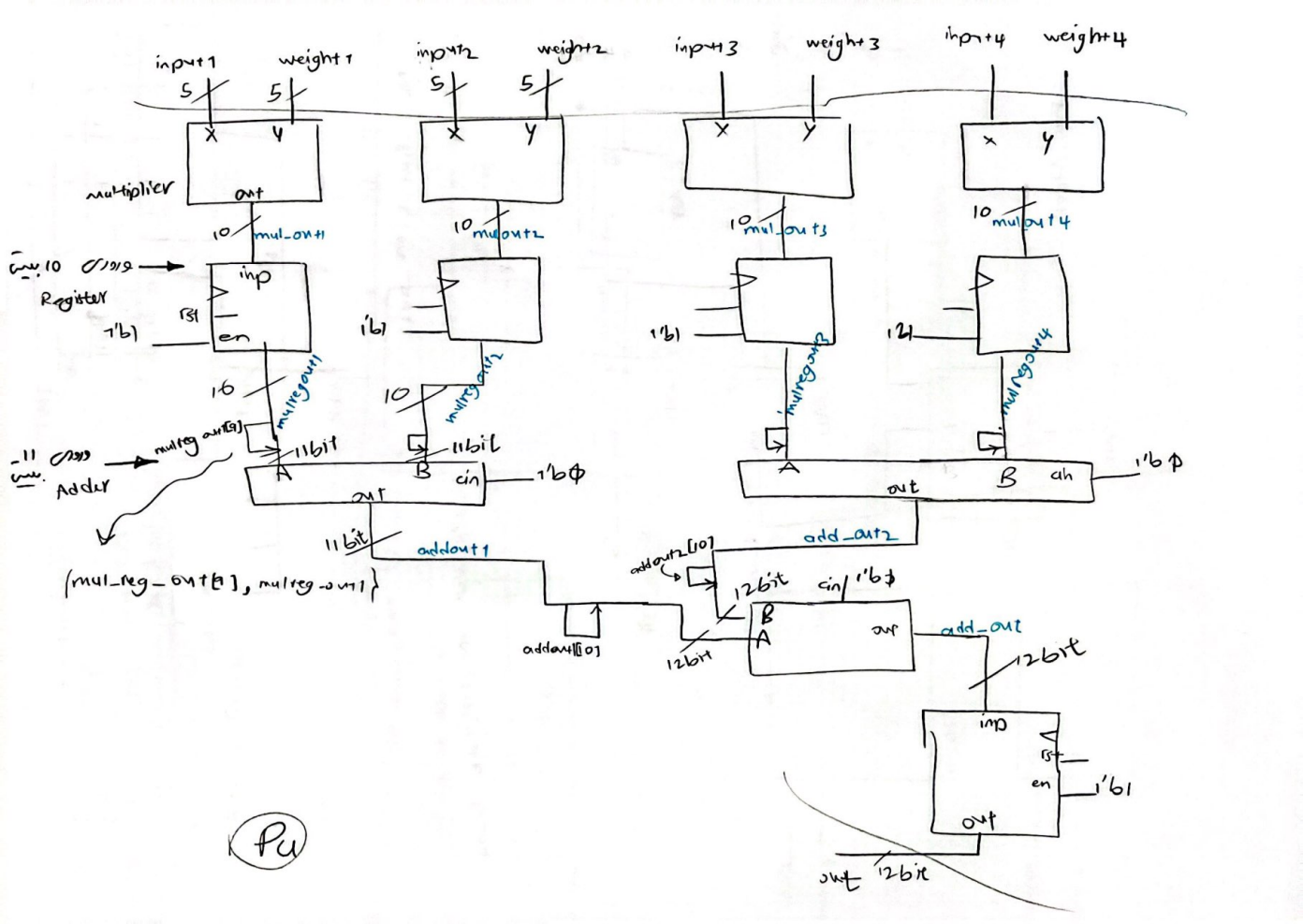
Nbit_four_to_one_mux

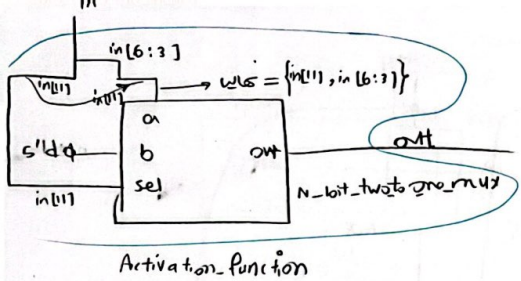
Nbit two to one هم مثل همینه

فقط باید یک دونه از نوع

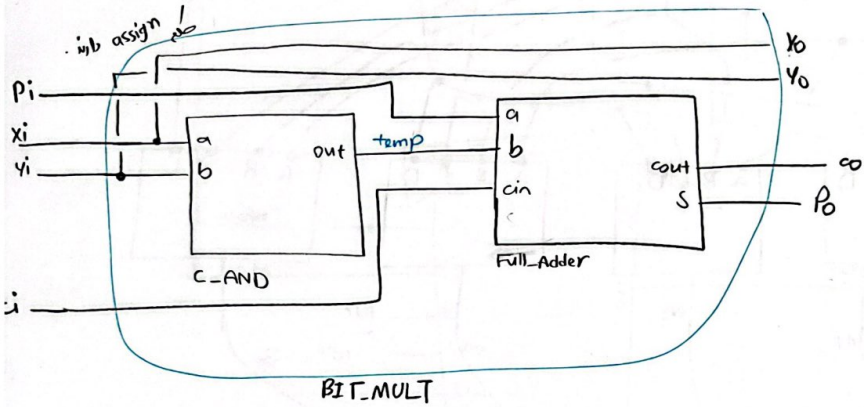
one_bit_two_to_one استفاده بشه.



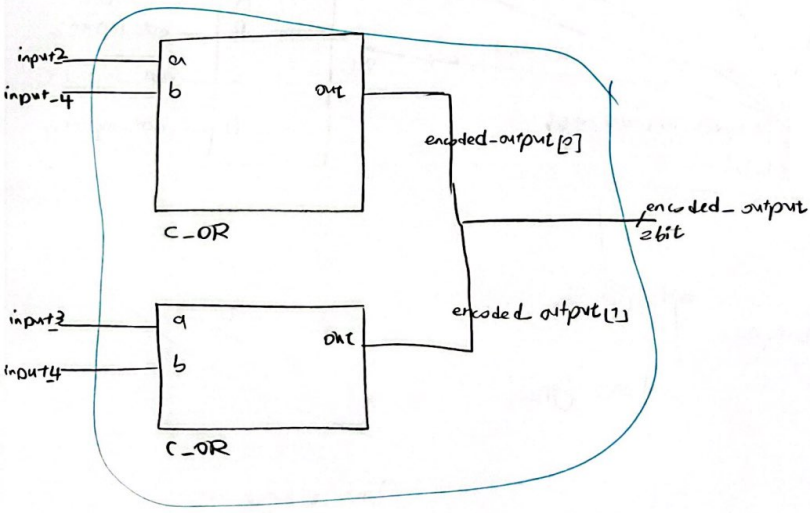

input1
weight1
input2
weight2
input3
weight3
input4
weight4
5
x
y
multiplier
out
10
mul_out1
mul_out2
mul_out3
mul_out4
inp
rst
en
1'b1
Register
16
mulregout1
mulregout2
mulregout3
mulregout4
mulreg_out[9]
11bit
A
B
cin
1'b0
Adder
out
add_out1
add_out2
add_out
addout1[10]
addout2[10]
12bit
{mul_reg_out[9], mulreg_out1}



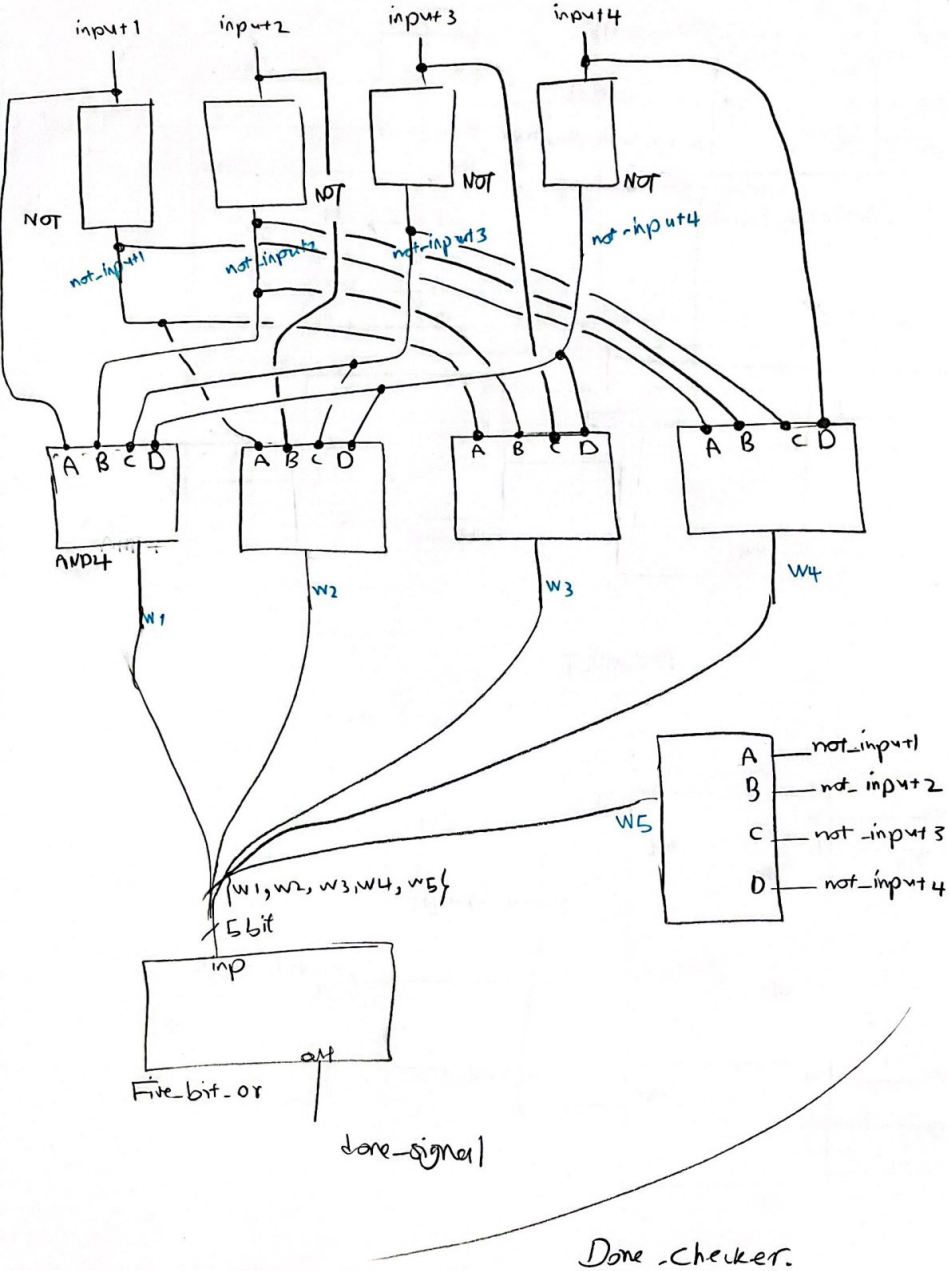
Activation_function

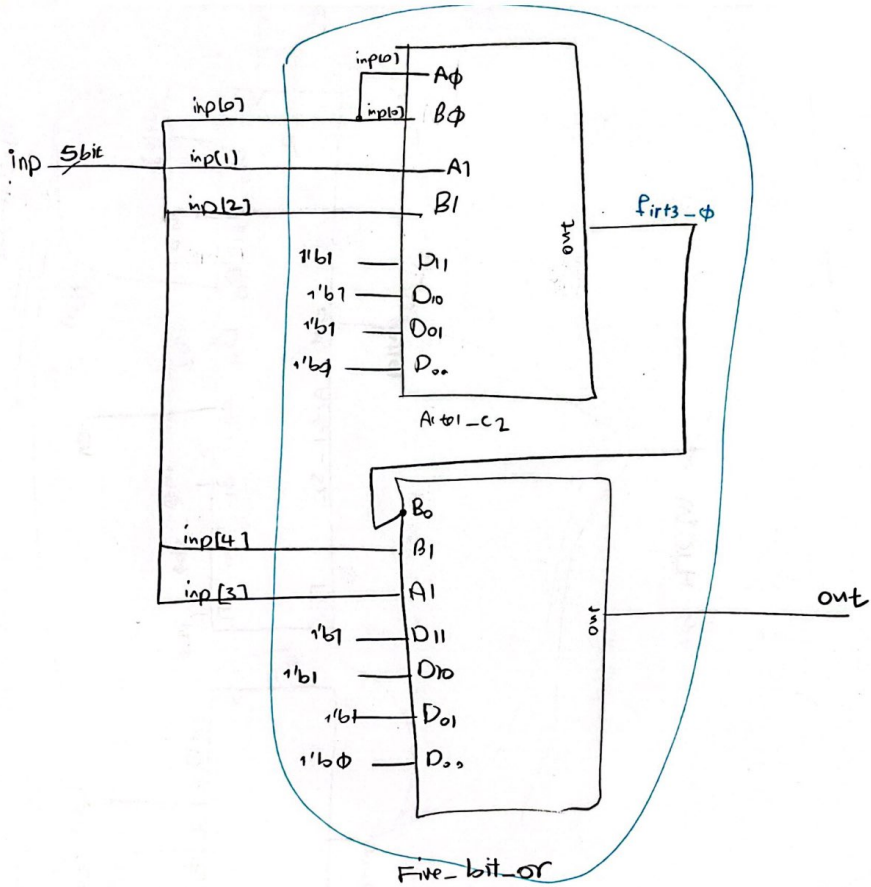


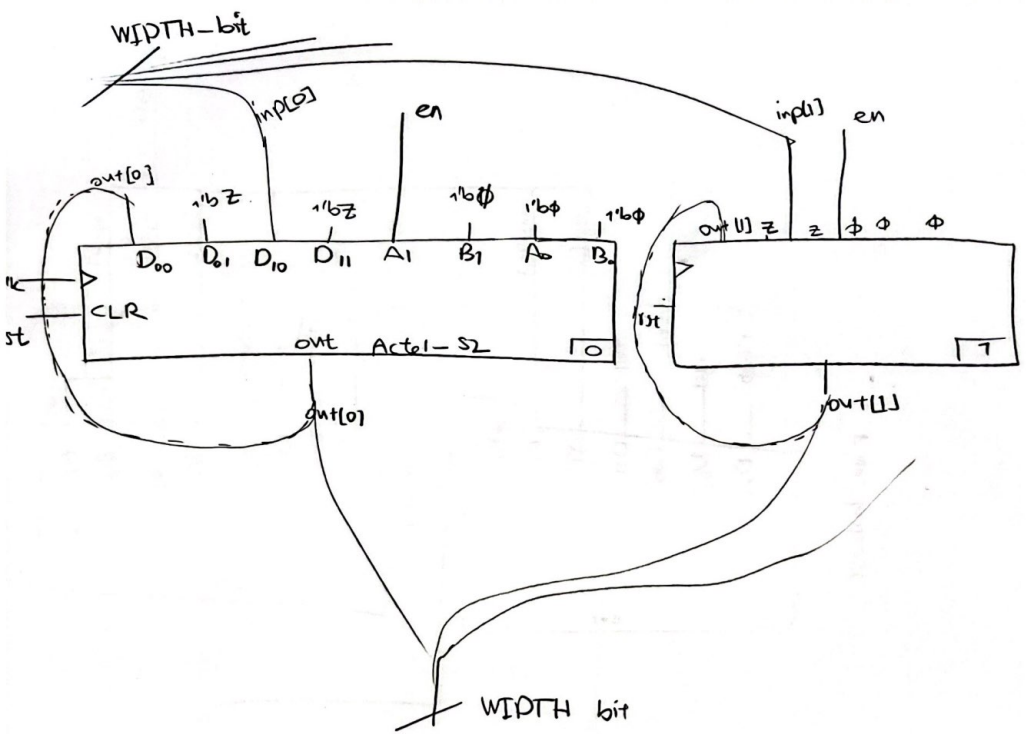
BIT_MULT



Encoder

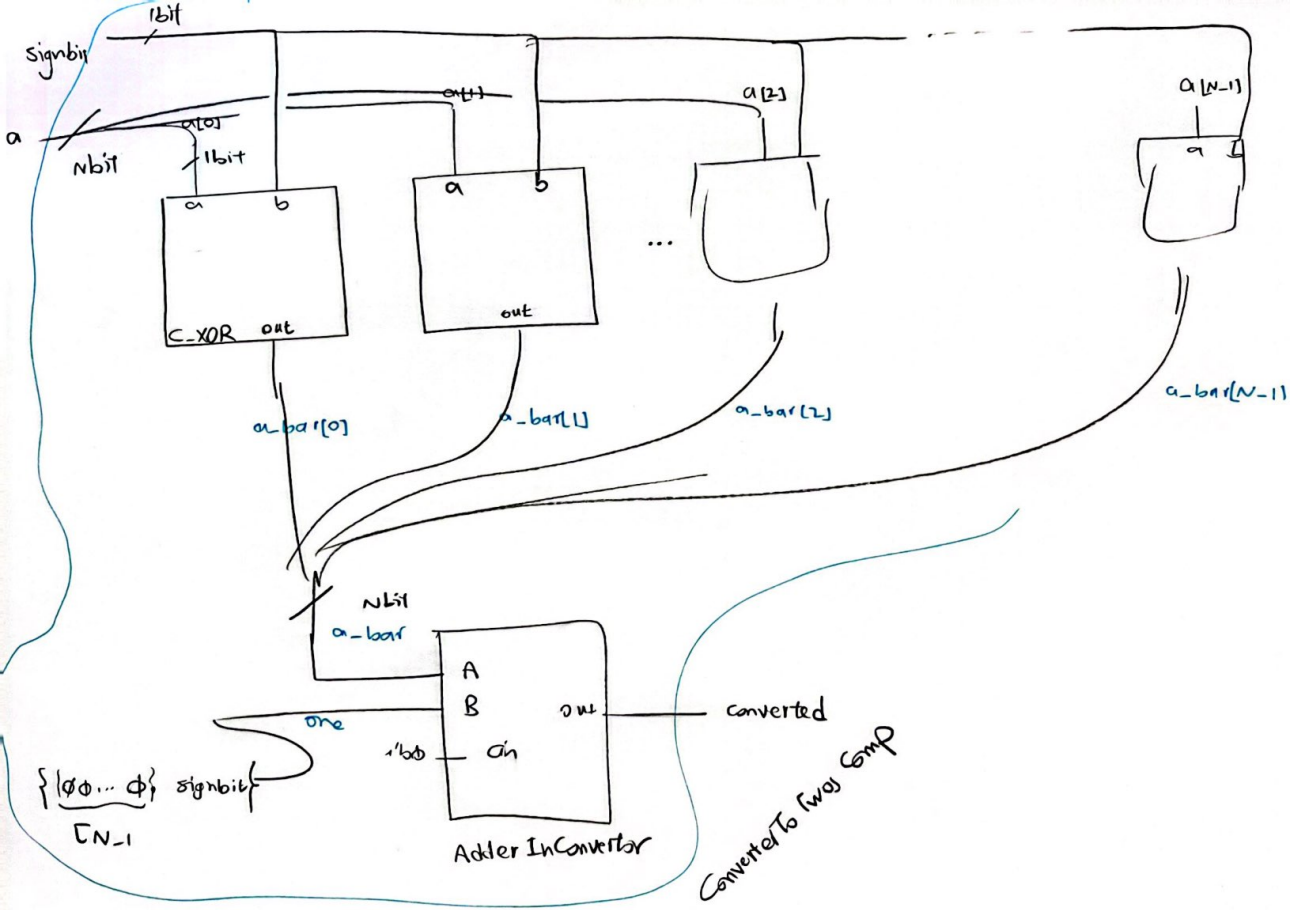

input1
input2
input3
input4
NOT
NOT
NOT
NOT
not_input1
not_input2
not_input3
not_input4
A B C D
A B C D
A B C D
A B C D
AND4
W1
W2
W3
W4
W5
A
B
C
D
not_input1
not_input2
not_input3
not_input4
{W1, W2, W3, W4, W5}
5bit
inp
out
Five_bit_OR
done_signal
Done_Checker.

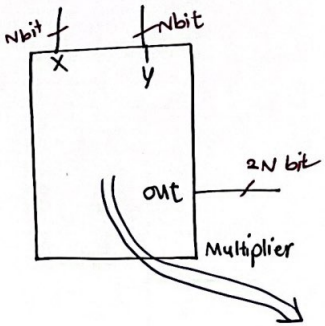

inp[0]
Aϕ
inp[0]
inp[0]
Bϕ
inp 5bit
inp[1]
A1
inp[2]
B1
first3_ϕ
out
1'b1
D11
1'b1
D10
1'b1
D01
1'bϕ
Dϕϕ
And1_c2
Bϕ
inp[4]
B1
inp[3]
A1
out
1'b1
D11
1'b1
D10
1'b1
D01
1'bϕ
Dϕϕ
Five_bit_or

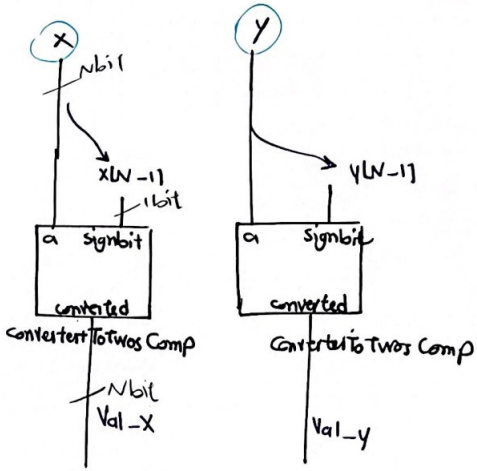


...

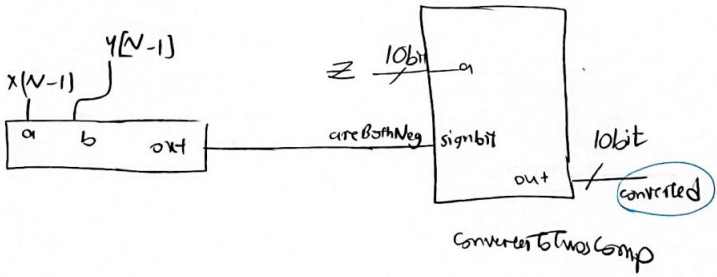
مثلا
WIDTH
تایی
آخرین آیتم
WIDTH-1
شروع از صفر

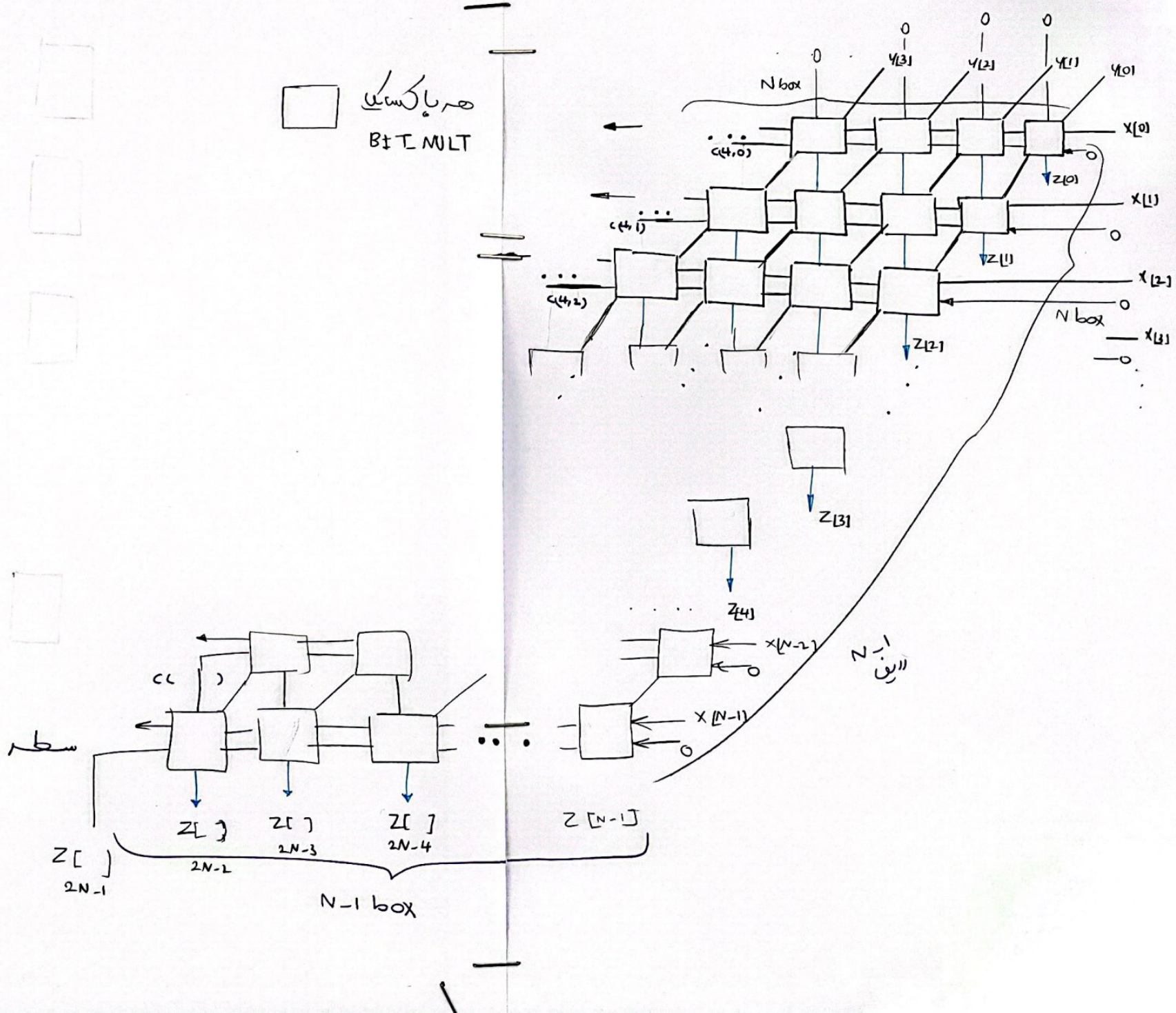

1bit
signbit
a
Nbit
a[0]
1bit
a[1]
a[2]
a[N-1]
a
b
C_XOR
out
a
b
out
...
a
[
a_bar[0]
a_bar[1]
a_bar[2]
a_bar[N-1]
NBit
a_bar
A
B
one
1'b0
Cin
Sum
converted
{ {φφ... φ} signbit }
[N-1
Adder InConverter
Converter To (wo) Comp

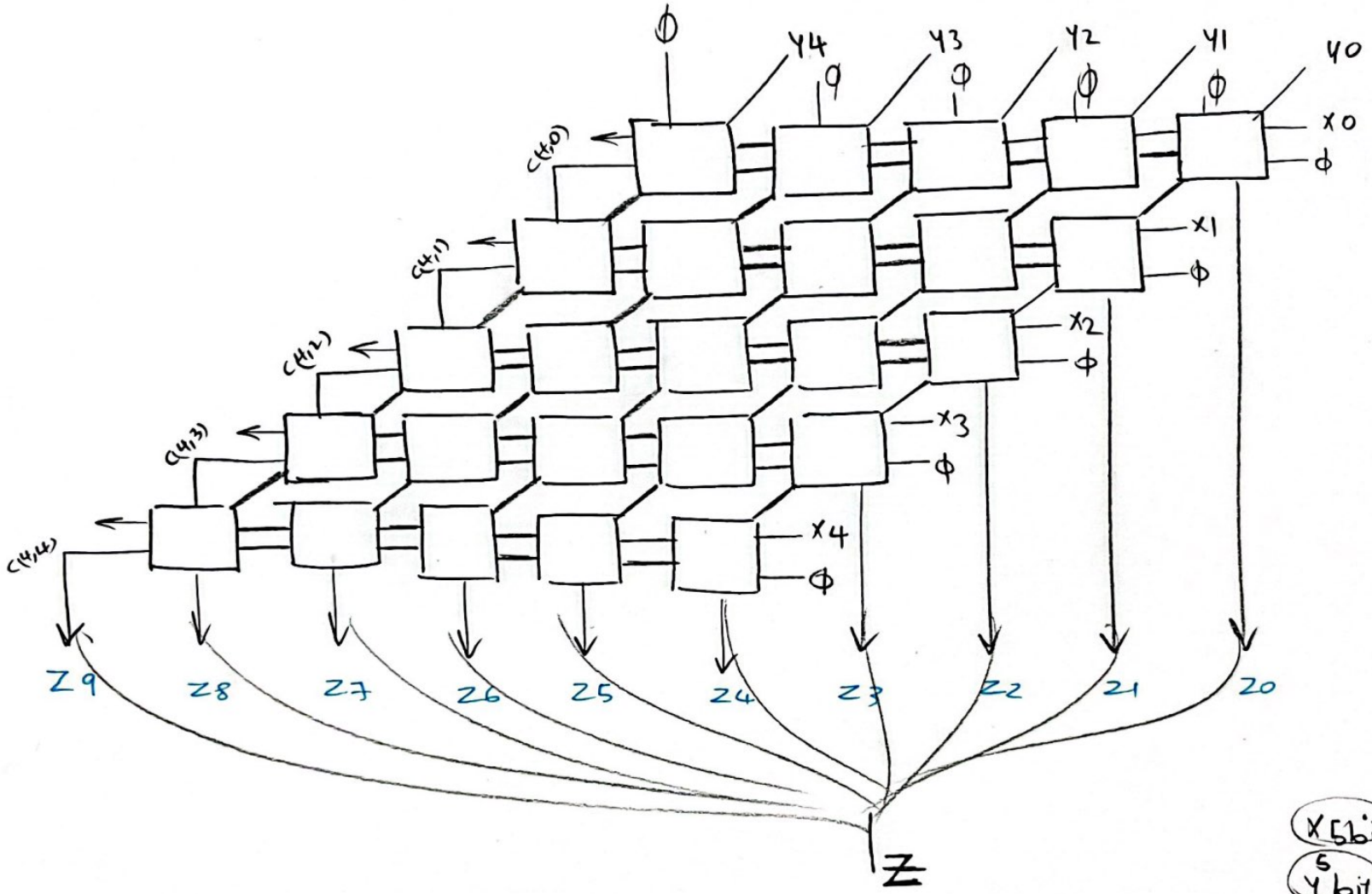




اینجا Logic
صفحه بعد میاد



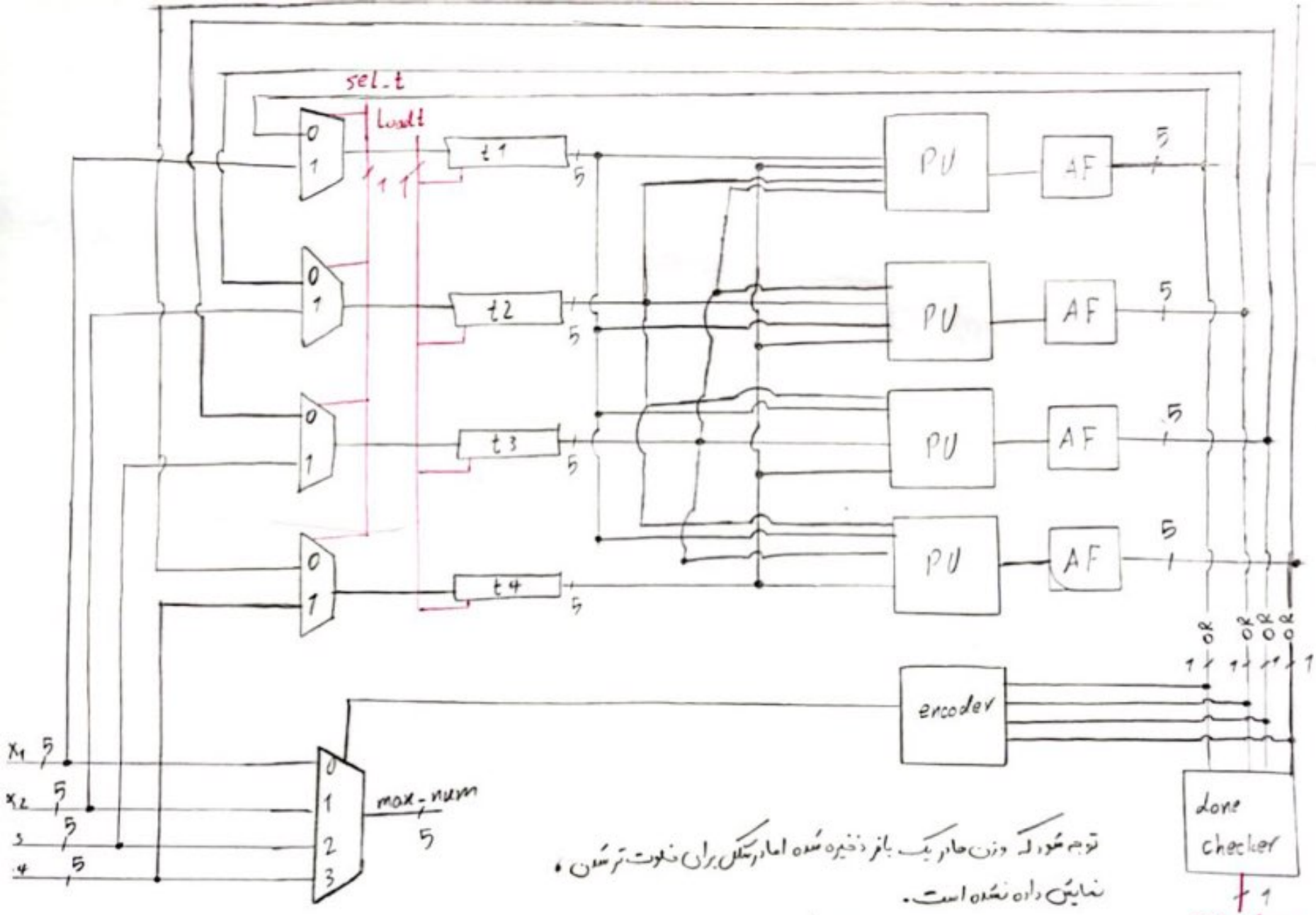

BIT MULT
N box
Y[3]
Y[2]
Y[1]
Y[0]
X[0]
X[1]
X[2]
X[3]
C(4,0)
C(4,1)
C(4,2)
Z[0]
Z[1]
Z[2]
Z[3]
Z[4]
X[N-2]
X[N-1]
N-1 box
Z[2N-1]
Z[2N-2]
Z[2N-3]
Z[2N-4]
Z[N-1]

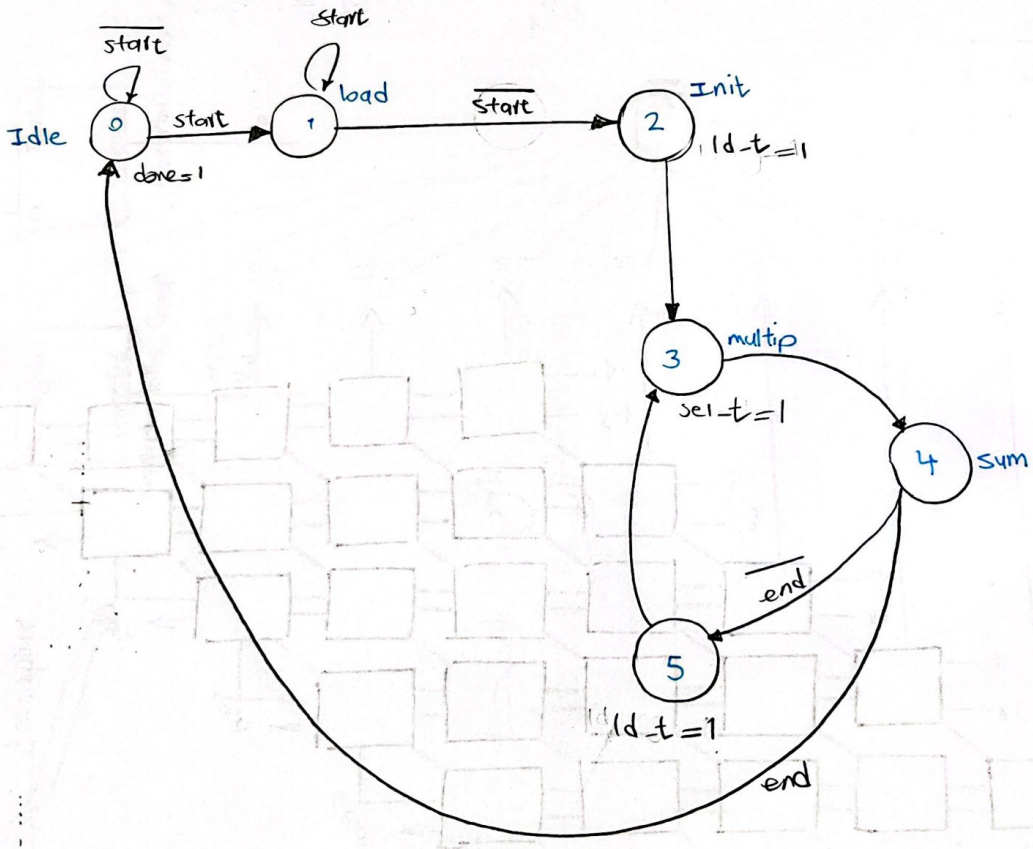


مثلاً X 5bit
Y 5bit

ضرب 10bit

مثلاً دودویی ۵ بیتی = صورت پرسش


sel_t
load
t1
t2
t3
t4
PU
PU
PU
PU
AF
AF
AF
AF
encoder
done checker
DP_done
x1
x2
3
4
max_num
توجه شود که وزن حاضر یک بار ذخیره شده اما در هنگام برای خلوت ترشدن ،
نمایش داده نشده است.
برای خلوت ، clk و رجیستر نمایش داده نشده است


start
start
load
Idle
0
start
1
start
2
Init
ld_t=1
done=1
3
multip
sel_t=1
4
sum
end
5
ld_t=1
end

Mobina Mehrazar 810100216 — 810100236 Mohammad amin yousefi

end = 1

PS2 PS1 \ PS0 S	00	01	11	10
00	0	1	–	0
01	1	1	–	0
11	1	0	–	1
10	0	0	–	1

end = 0

PS2 PS1 \ PS0 S	00	01	11	10
00	0	0	–	1
01	1	1	–	1
11	1	0	–	1
10	0	0	–	1

NS[0]

PS2 PS1 \ PS0 S	00	01	11	10
00	0	1	–	0
01	0	1	–	0
11	0	0	–	1
10	1	0	–	1

PS2 PS1 \ PS0 S	00	01	11	10
00	0	1	–	0
01	0	1	–	0
11	0	0	–	1
10	1	0	–	1

NS[1]

PS2 PS1 \ PS0 S	00	01	11	10
00	0	0	–	0
01	0	0	–	0
11	0	1	–	0
10	0	1	–	0

PS2 PS1 \ PS0 S	00	01	11	10
00	0	0	–	1
01	0	0	–	1
11	0	1	–	0
10	0	1	–	0

NS[2]

$$NS[0] = PS[1]\overline{PS[0]} + PS[2]PS[0] + \overline{finish}\,PS[2] + start\,\overline{PS[1]}\,\overline{PS[2]}$$ d

$$NS[1] = PS[1]\overline{PS[0]} + PS[0]PS[2] + PS[0]\overline{PS[1]}\,\overline{start}$$ c

$$NS[2] = PS[0]PS[1] + \overline{PS[0]}\,PS[2]\,\overline{finish}$$ b

Combinational Logic

start

finish

PS

✓