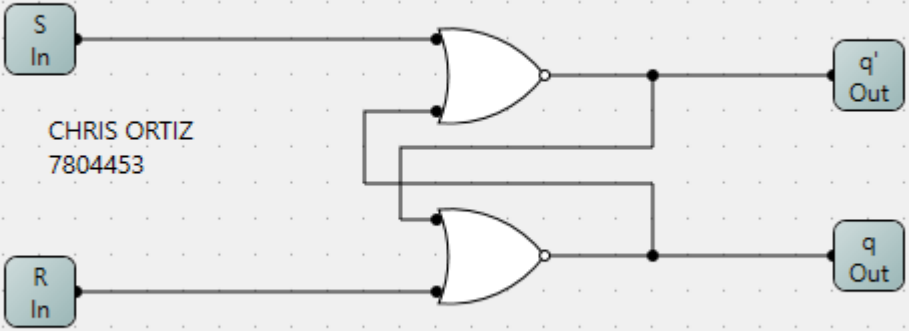
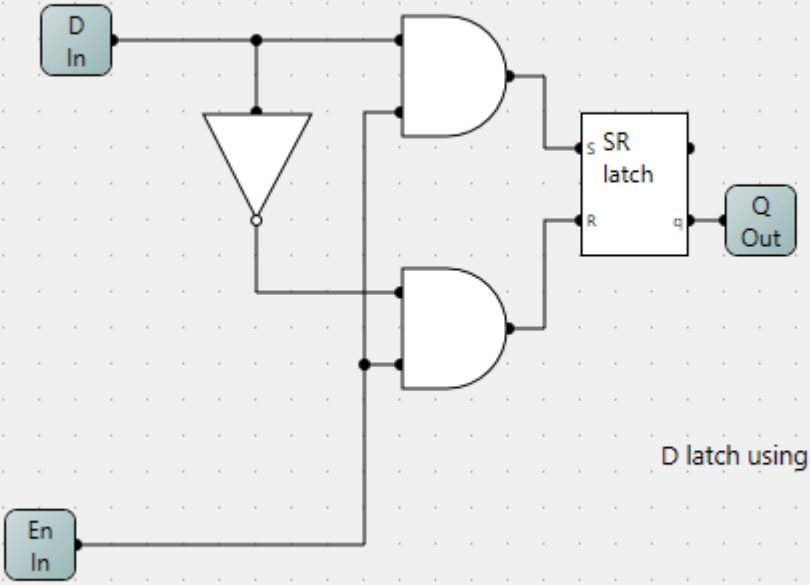
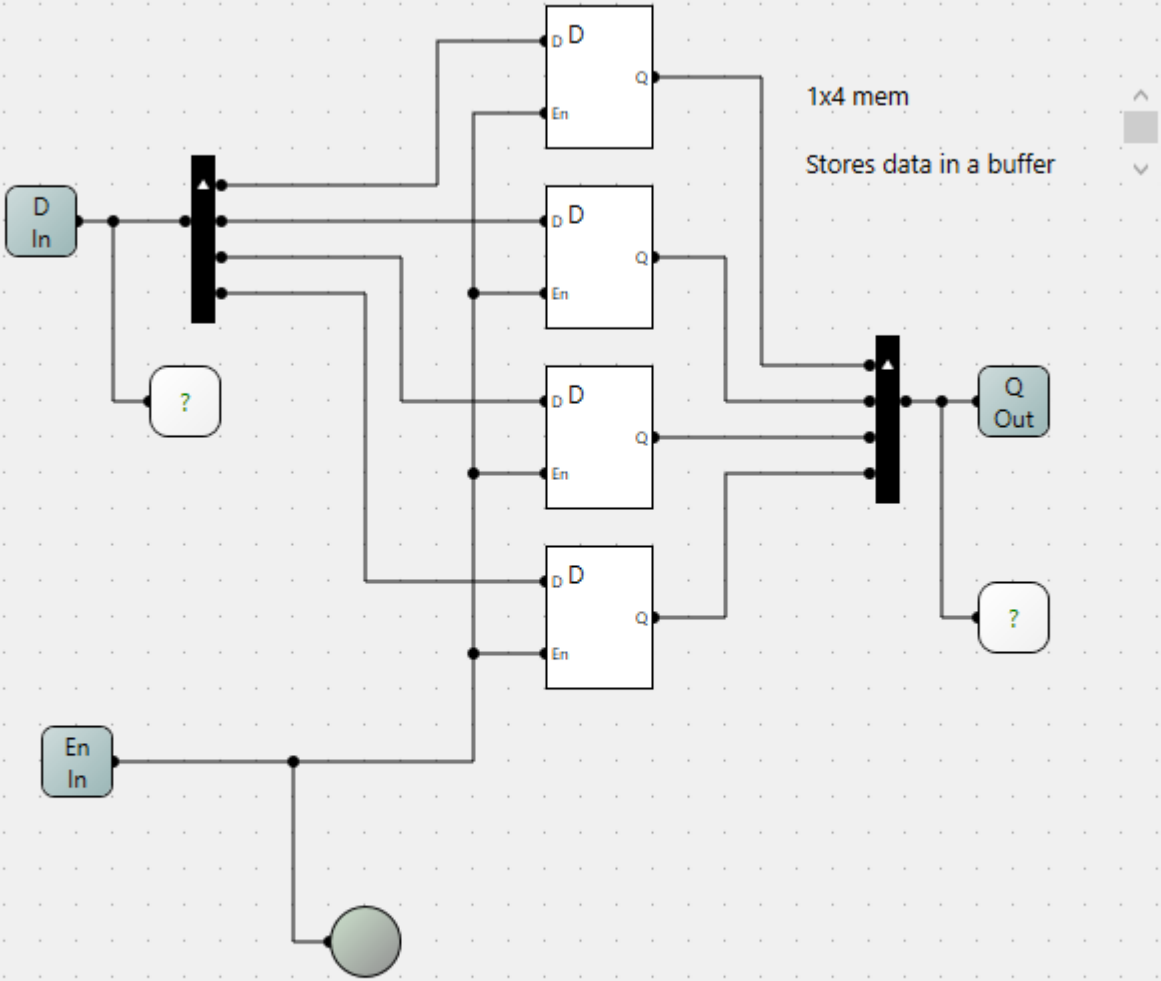

S
In
CHRIS ORTIZ
7804453
R
In
q'
Out
q
Out
Set reset latch

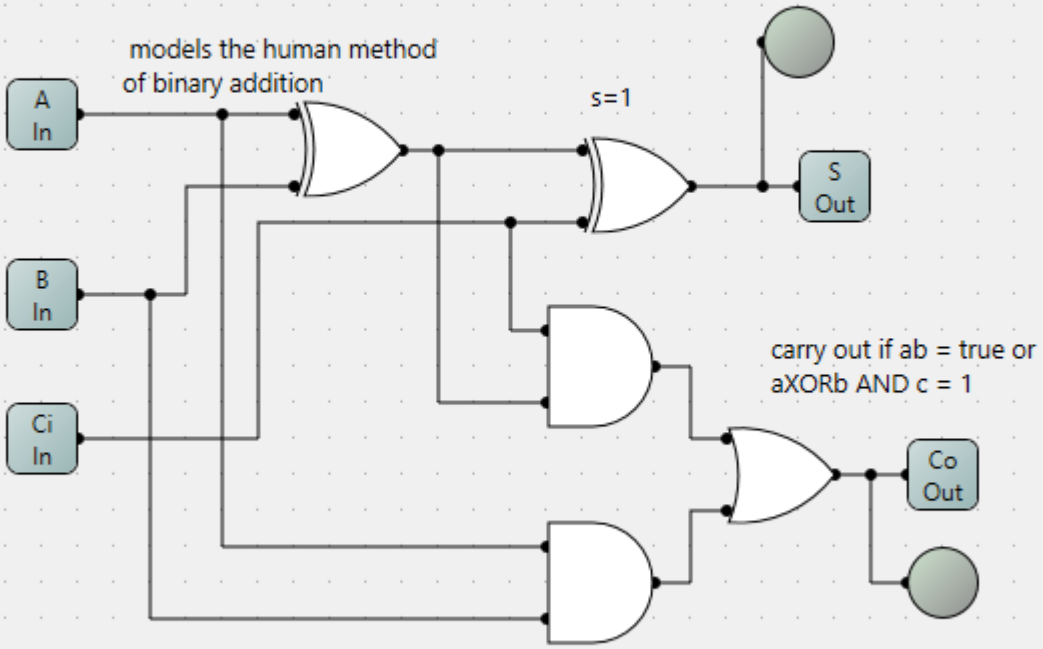



D latch using Sr latch


1x4 mem
Stores data in a buffer
D
In
?
D
D
En
Q
Q
Out
En
In

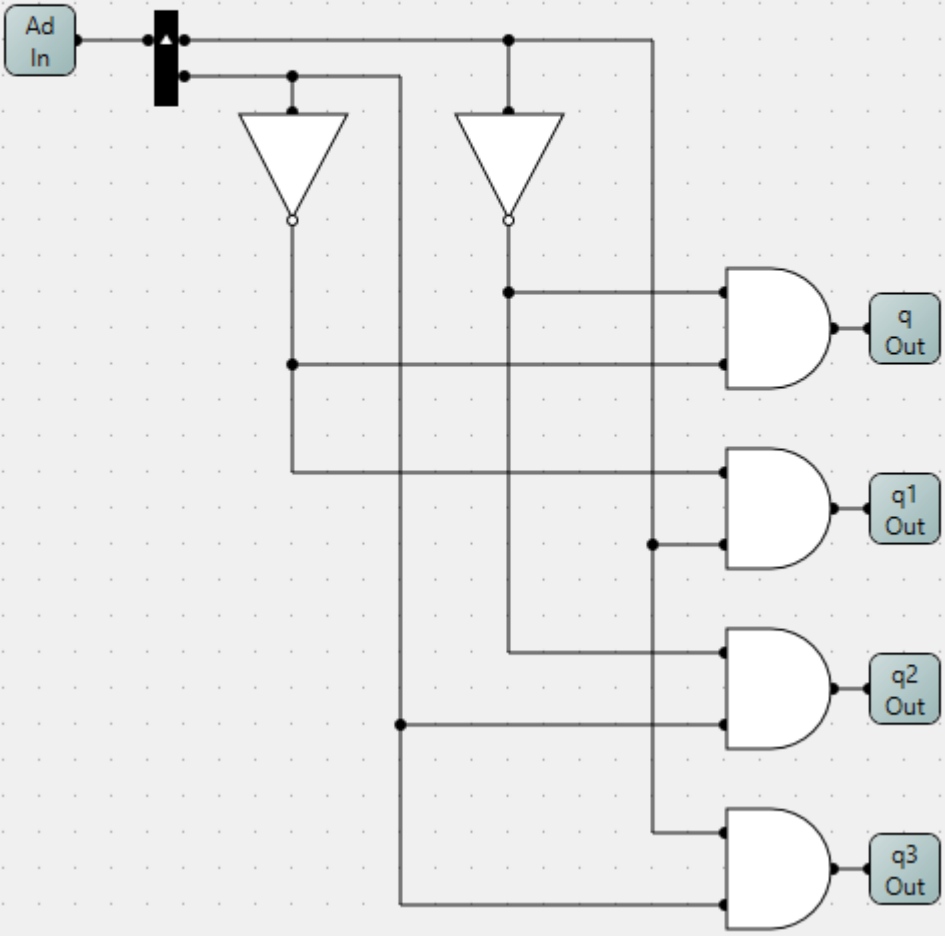
1 bit adder

manages carry out when needed, accounts for a carry in value,

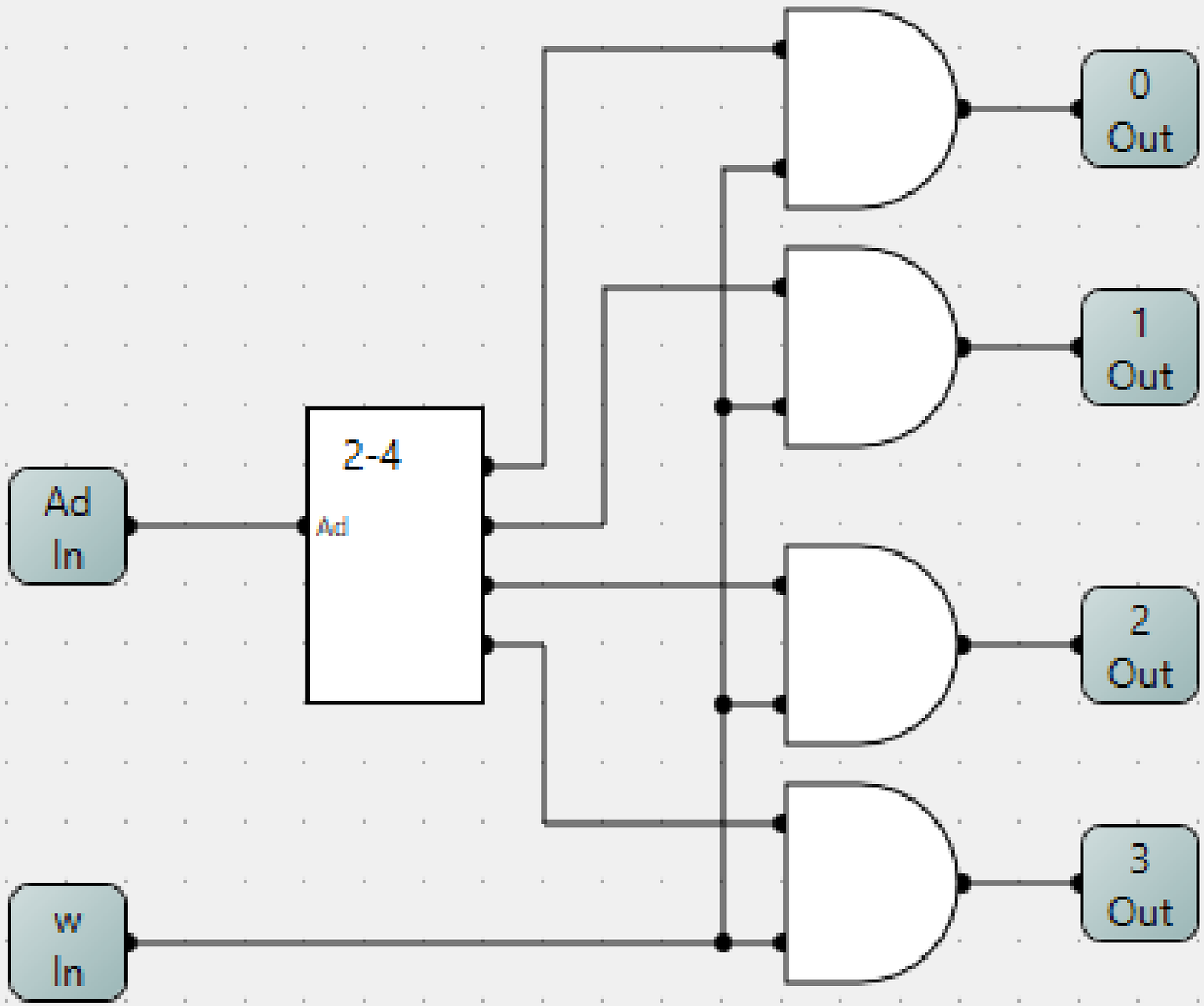


2-4 decoder

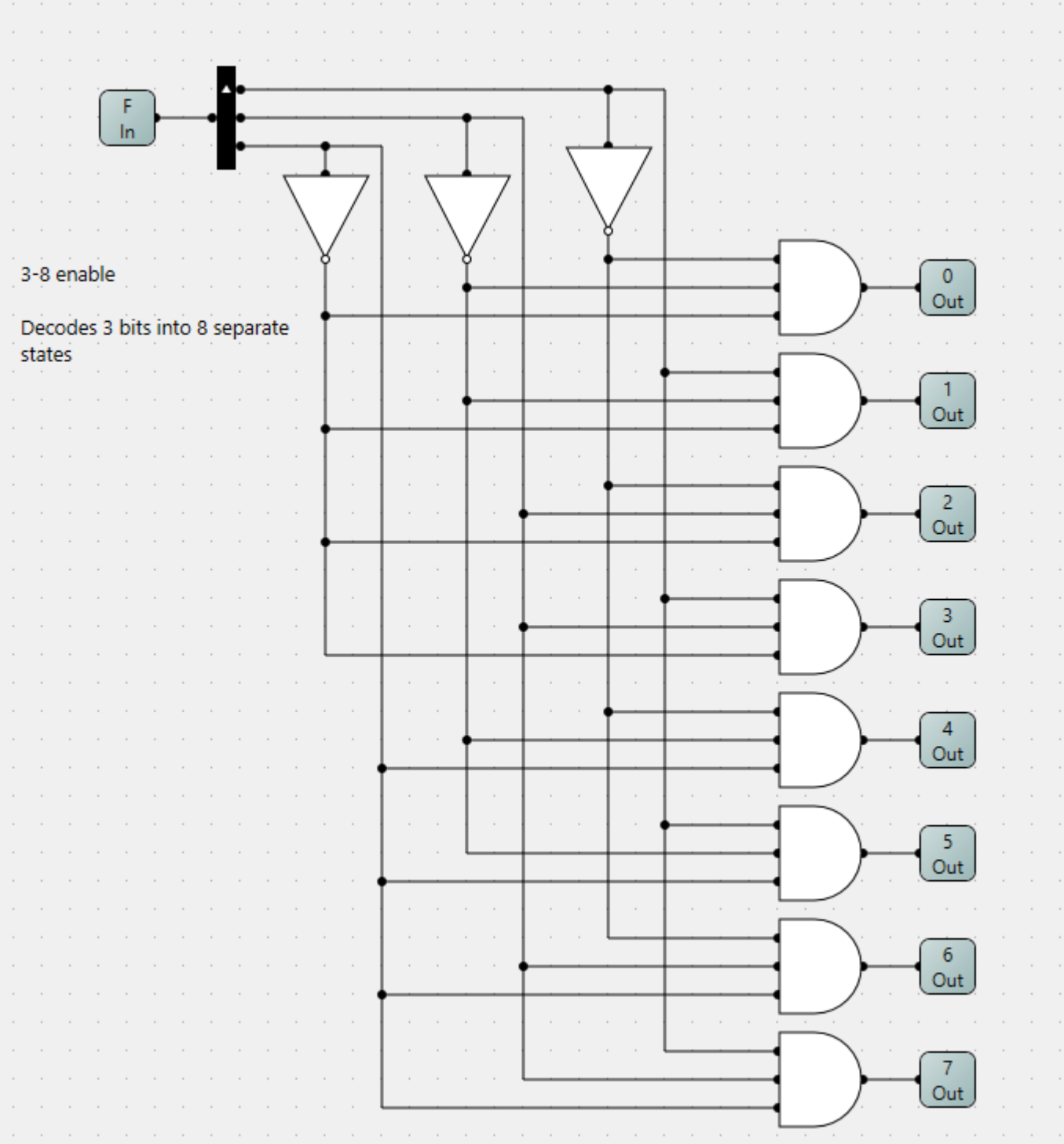
Decodes 2bit to 4 separate states

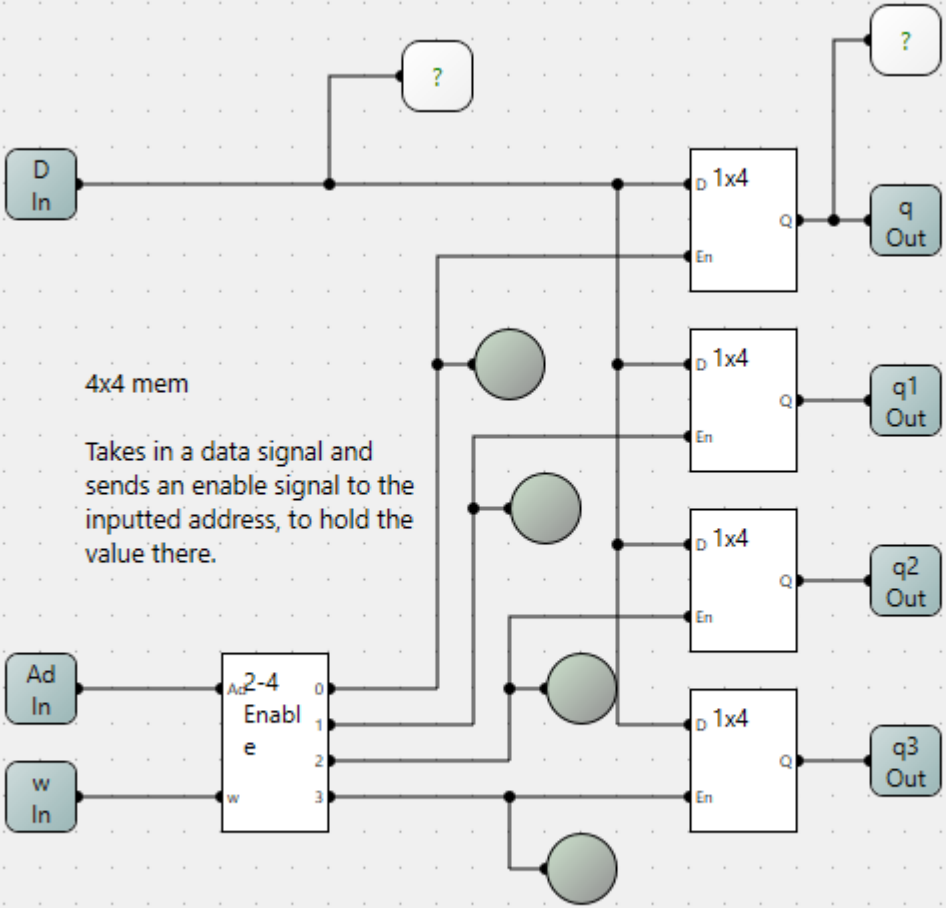


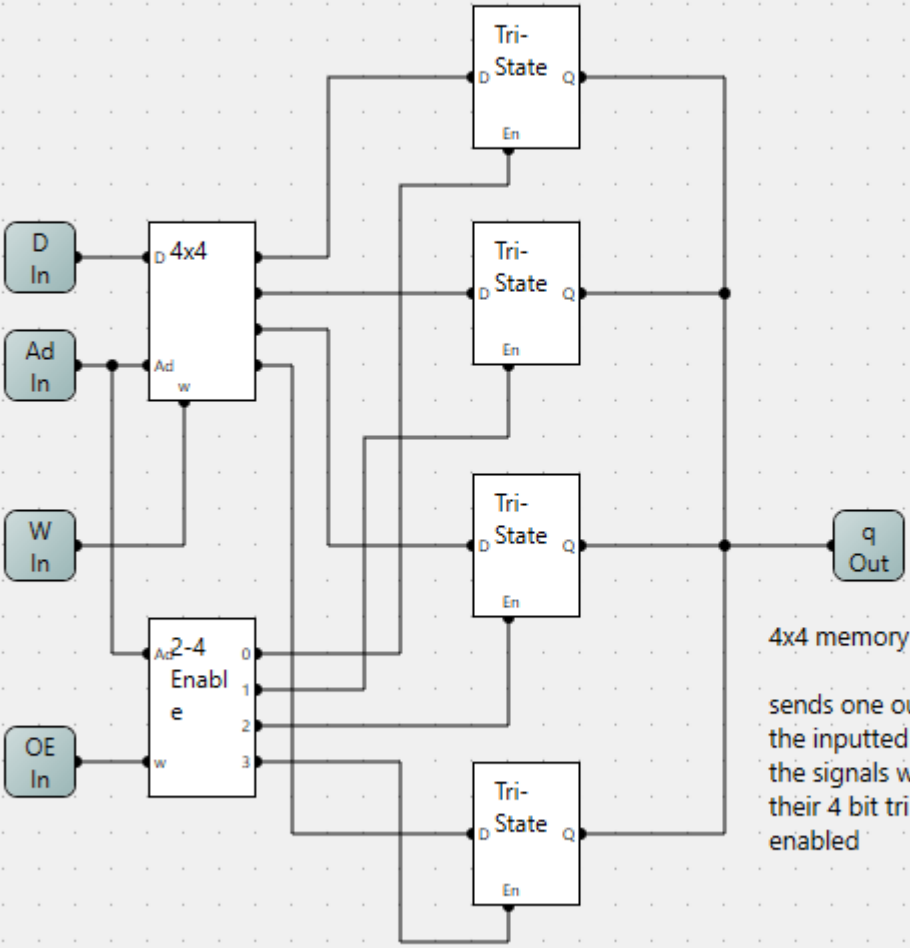
2-4 Enable




Sends single decoded signal
PENDING w =1

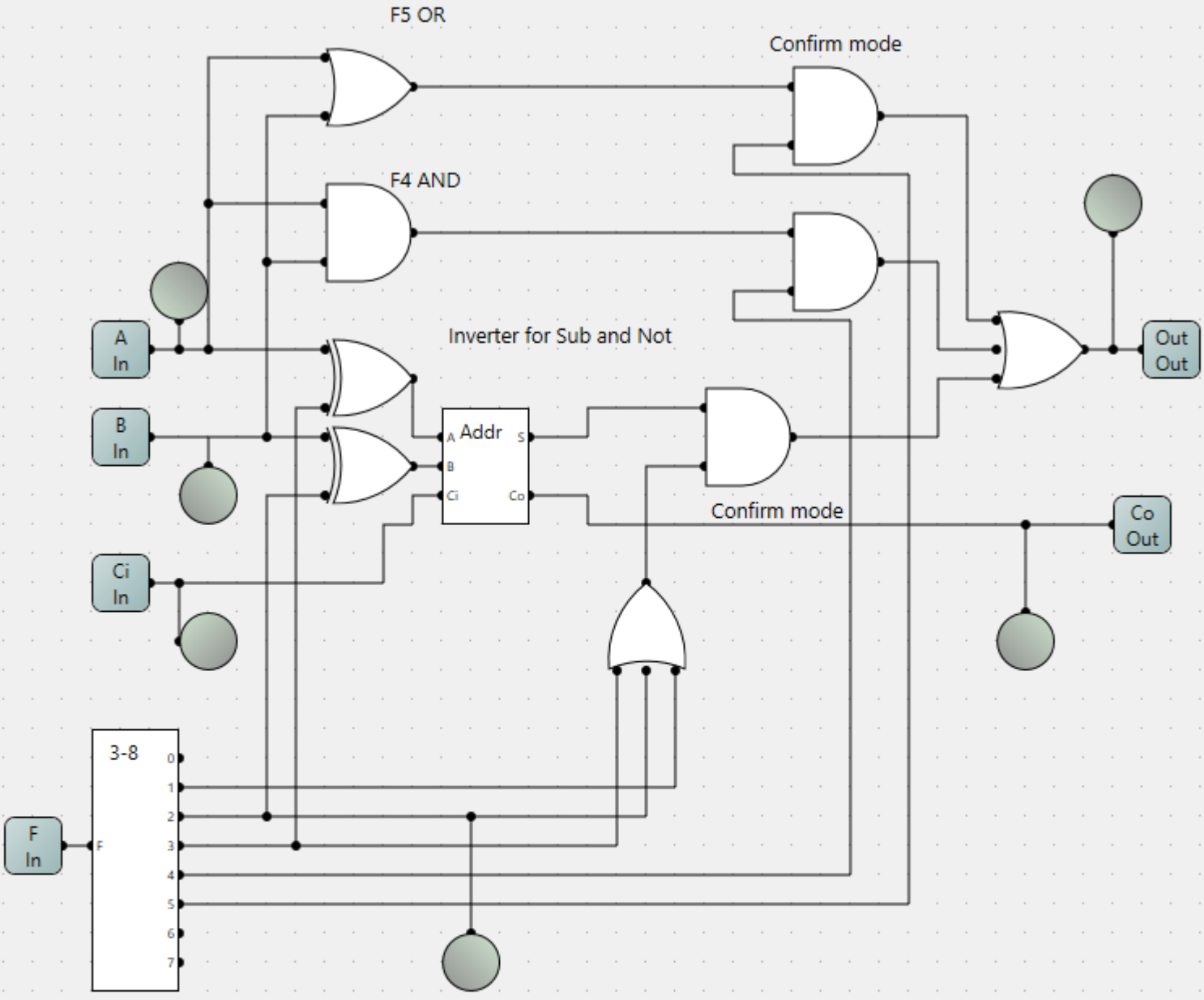

F
In
3-8 enable
Decodes 3 bits into 8 separate states
0
Out
1
Out
2
Out
3
Out
4
Out
5
Out
6
Out
7
Out


?
?
D
In
1x4
D
Q
En
q
Out
4x4 mem
Takes in a data signal and sends an enable signal to the inputted address, to hold the value there.
1x4
q1
Out
1x4
q2
Out
Ad
In
2-4
Enabl
e
Ad
0
1
2
3
w
In
w
1x4
q3
Out




4x4 memory w/ enable

sends one output based on the inputted address , rest of the signals will be low due to their 4 bit tri state not being enabled




0: None

1: Add

2: Subtract

3: Not A

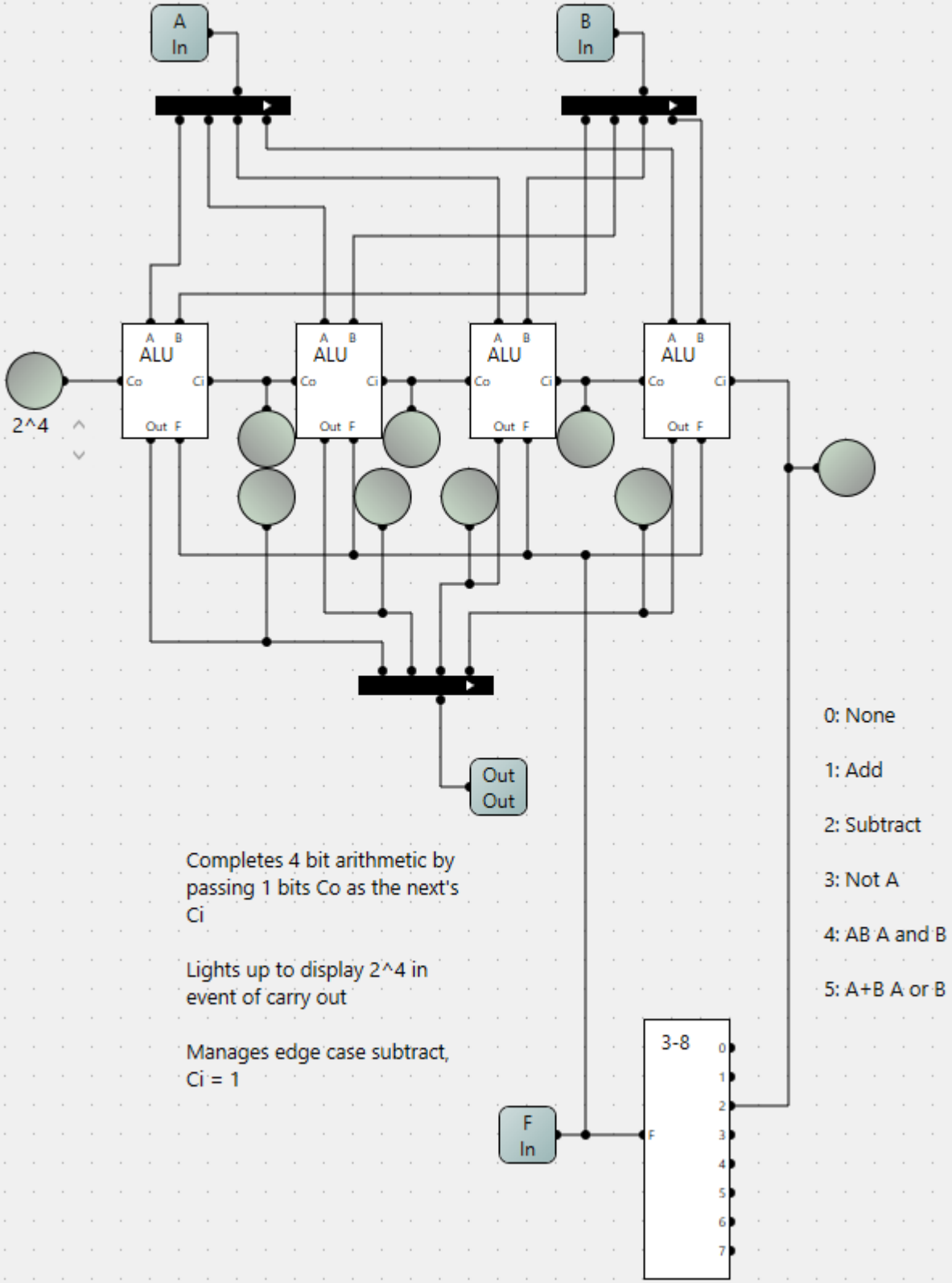
4: AB A and B

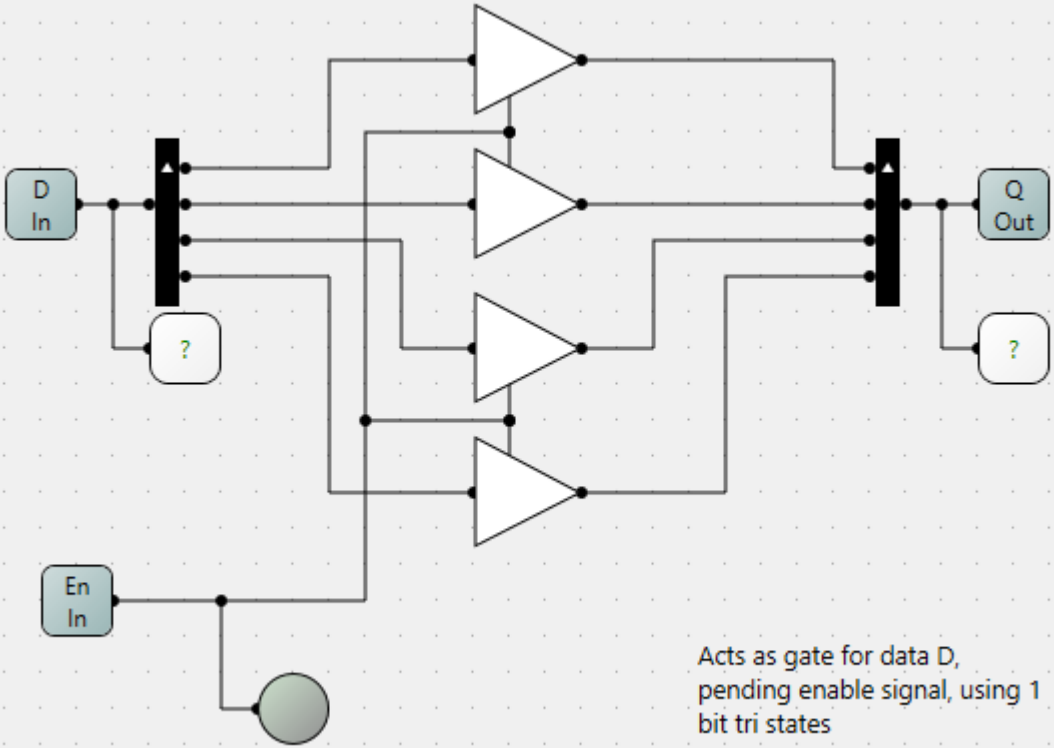
5: A+B A or B

ALU that supports the following 5 functions for 1 bit operations,

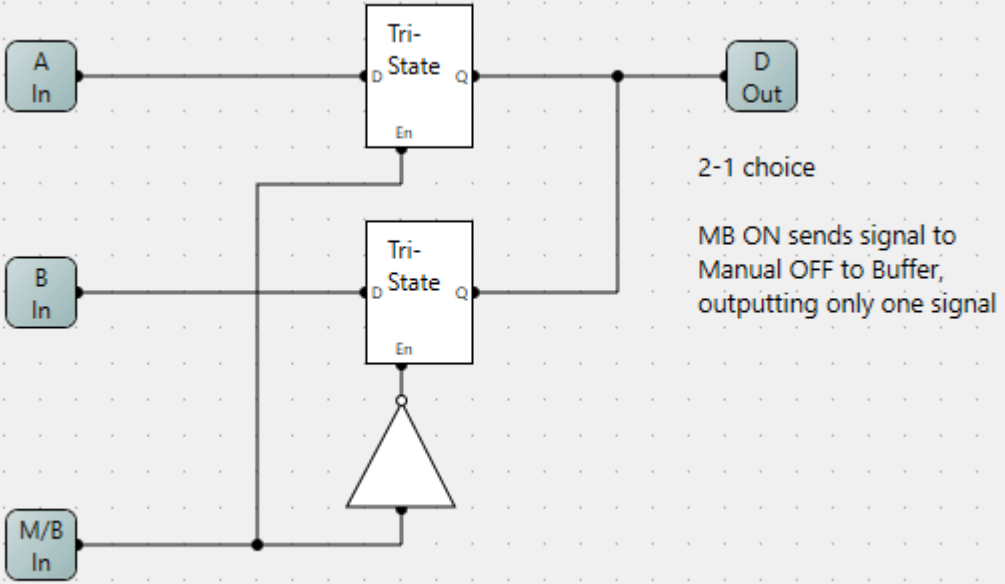
Makes use of the adder to manage Ci,Co

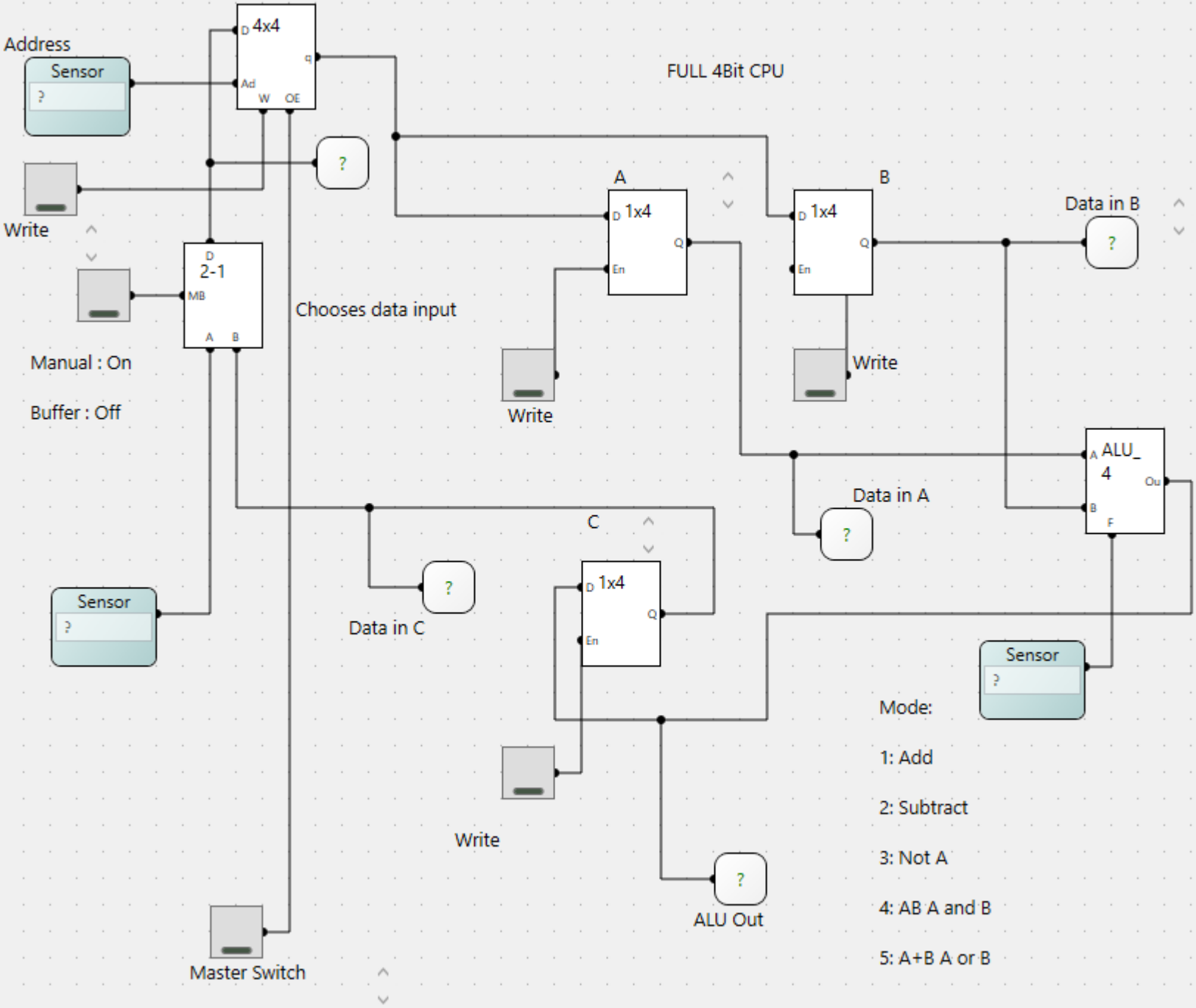
Decodes function input and manages edge cases if need (sub, not)


A
In
B
In
ALU
ALU
ALU
ALU
2^4
Out
Out
Completes 4 bit arithmetic by passing 1 bits Co as the next's Ci
Lights up to display 2^4 in event of carry out
Manages edge case subtract, Ci = 1
0: None
1: Add
2: Subtract
3: Not A
4: AB A and B
5: A+B A or B
3-8
F
In




Acts as gate for data D, pending enable signal, using 1 bit tri states


A
In
Tri-
State
D
Q
En
D
Out
B
In
Tri-
State
D
Q
En
M/B
In
2-1 choice
MB ON sends signal to
Manual OFF to Buffer,
outputting only one signal


FULL 4Bit CPU
Address
Sensor
?
4x4
D
Adl
W
OE
q
?
Write
2-1
MB
A
B
Manual : On
Buffer : Off
Chooses data input
A
1x4
D
En
Q
B
1x4
Write
Write
Data in B
?
Data in A
?
ALU_
4
Ou
F
C
1x4
Data in C
?
Sensor
?
Write
?
ALU Out
Sensor
?
Master Switch
Mode:
1: Add
2: Subtract
3: Not A
4: AB A and B
5: A+B A or B