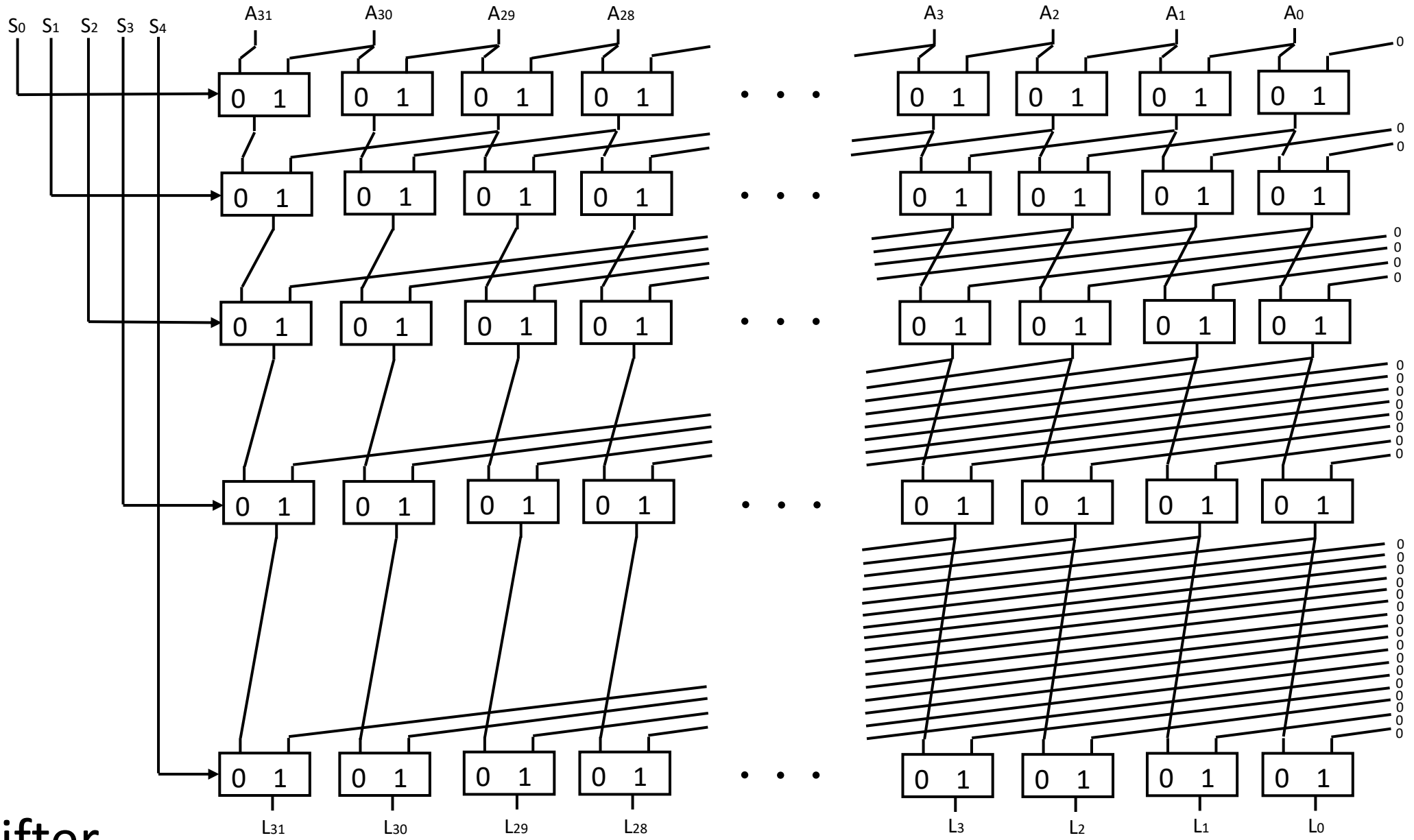
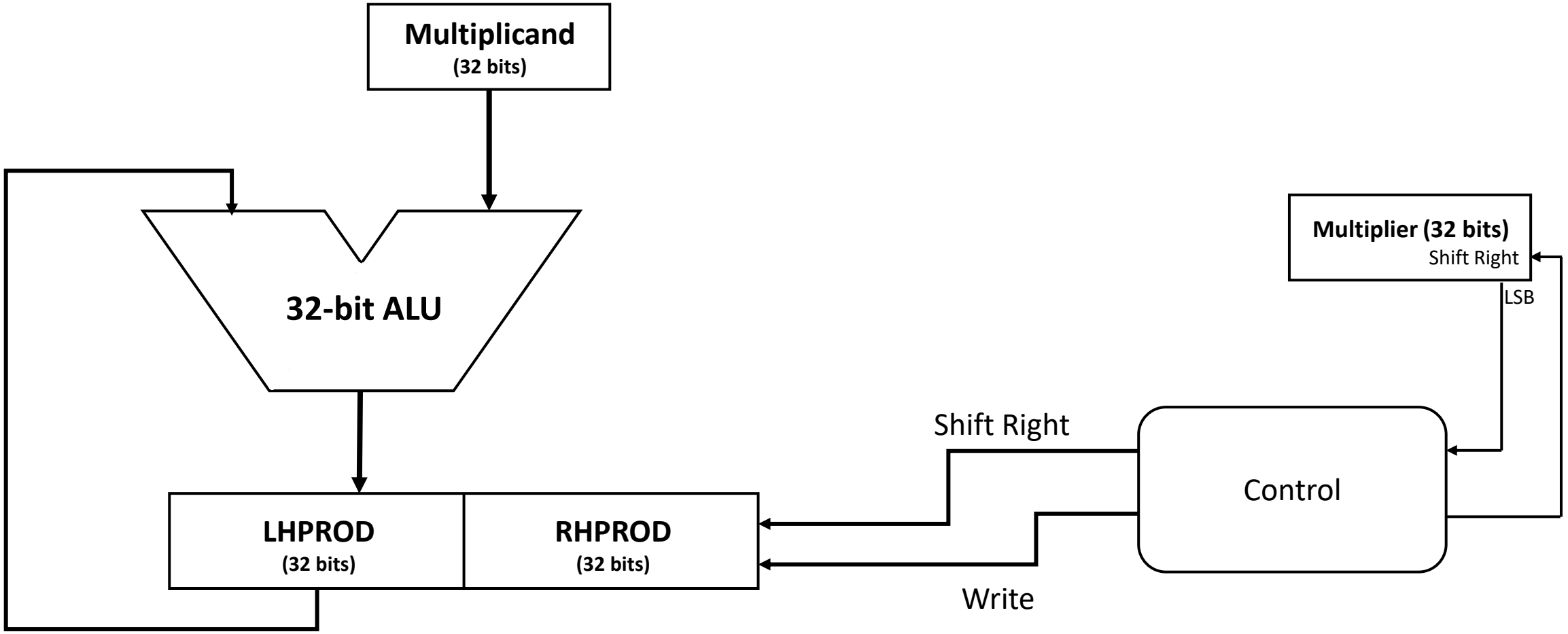
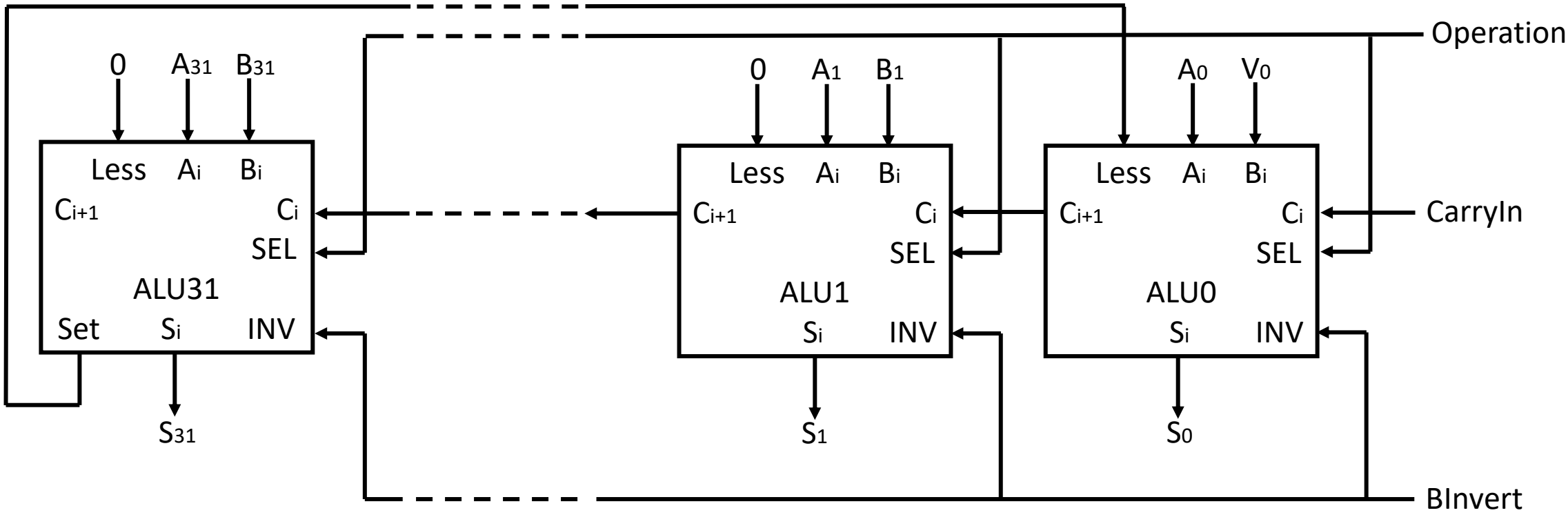

S0 S1 S2 S3 S4
A31 A30 A29 A28
A3 A2 A1 A0
0 1
0
L31 L30 L29 L28
L3 L2 L1 L0

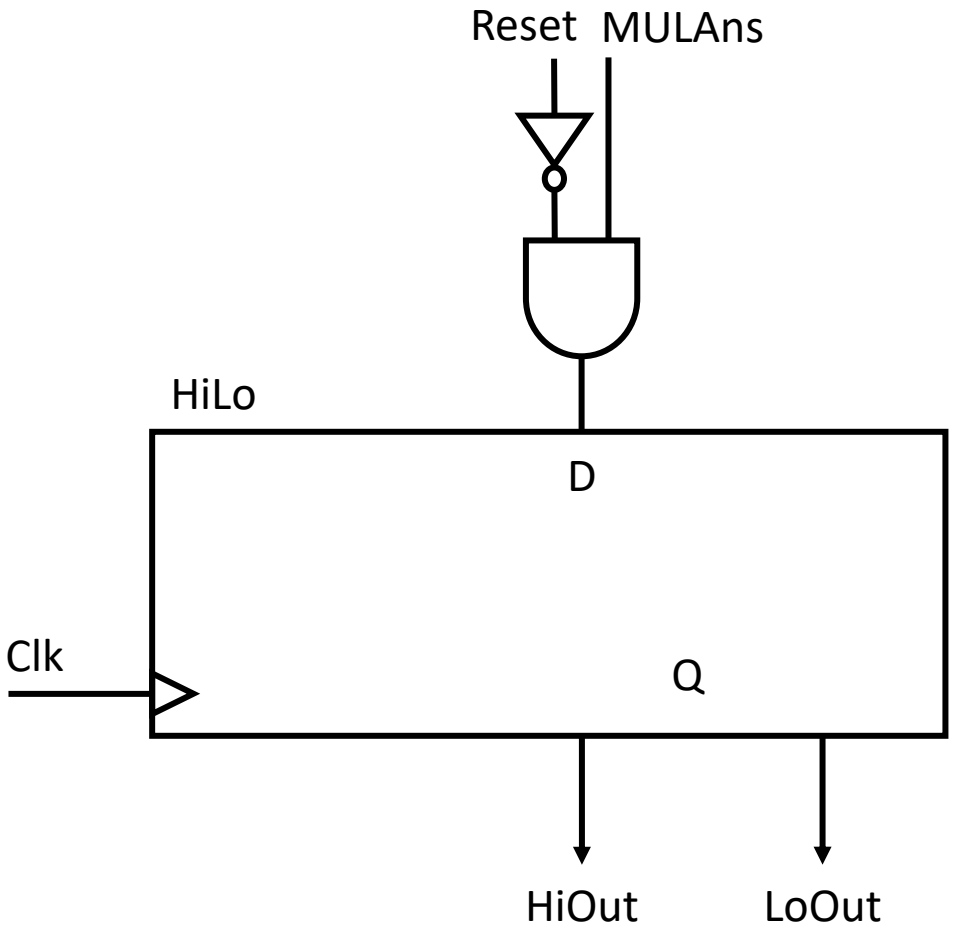
Shifter


Multiplicand
(32 bits)
32-bit ALU
Multiplier (32 bits)
Shift Right
LSB
Shift Right
Control
LHPROD
(32 bits)
RHPROD
(32 bits)
Write

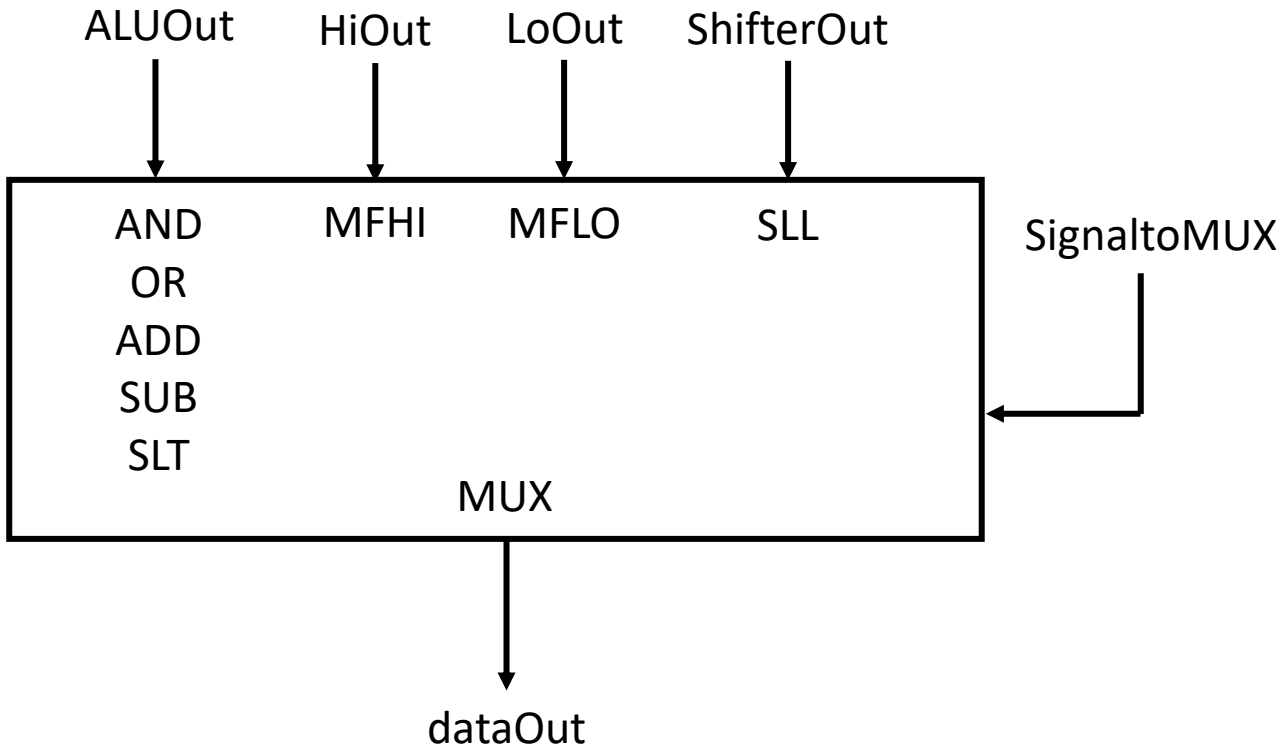
Multiplier


Operation
CarryIn
BInvert
0
A31
B31
Less
Ai
Bi
Ci+1
Ci
SEL
ALU31
Set
Si
INV
S31
0
A1
B1
ALU1
S1
A0
V0
ALU0
S0

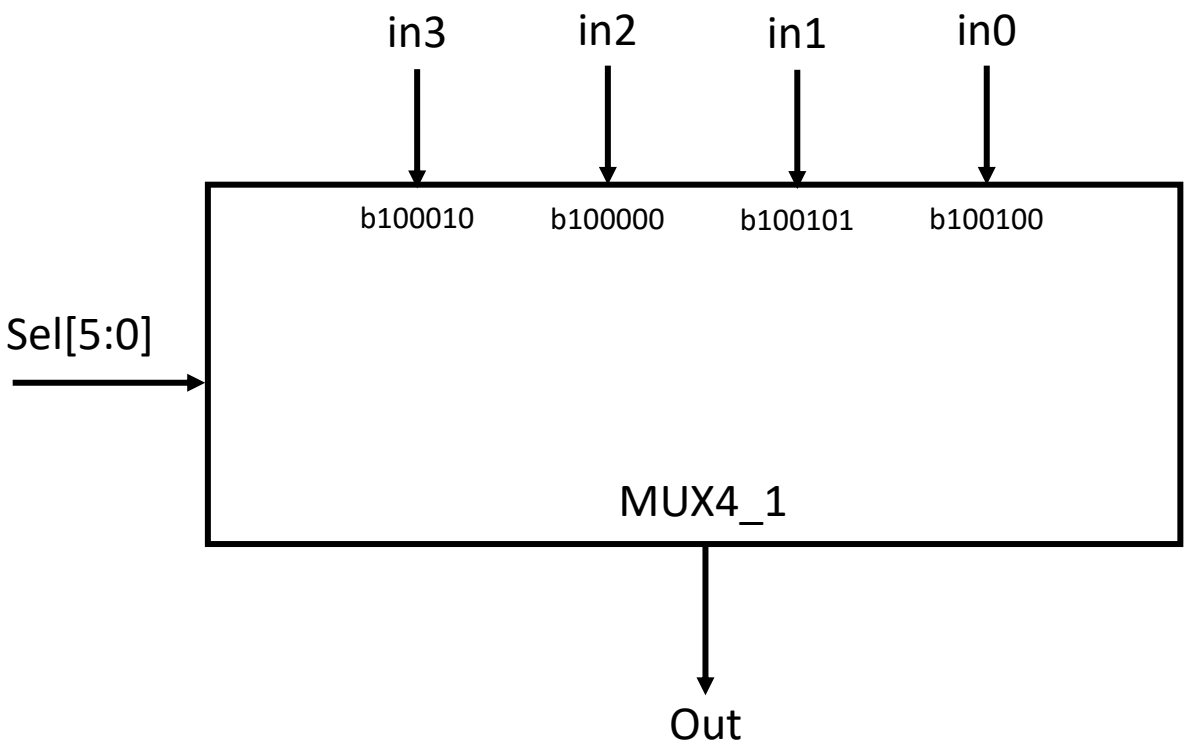
32bit-ALU


Reset
MULAns
HiLo
D
Clk
Q
HiOut
LoOut

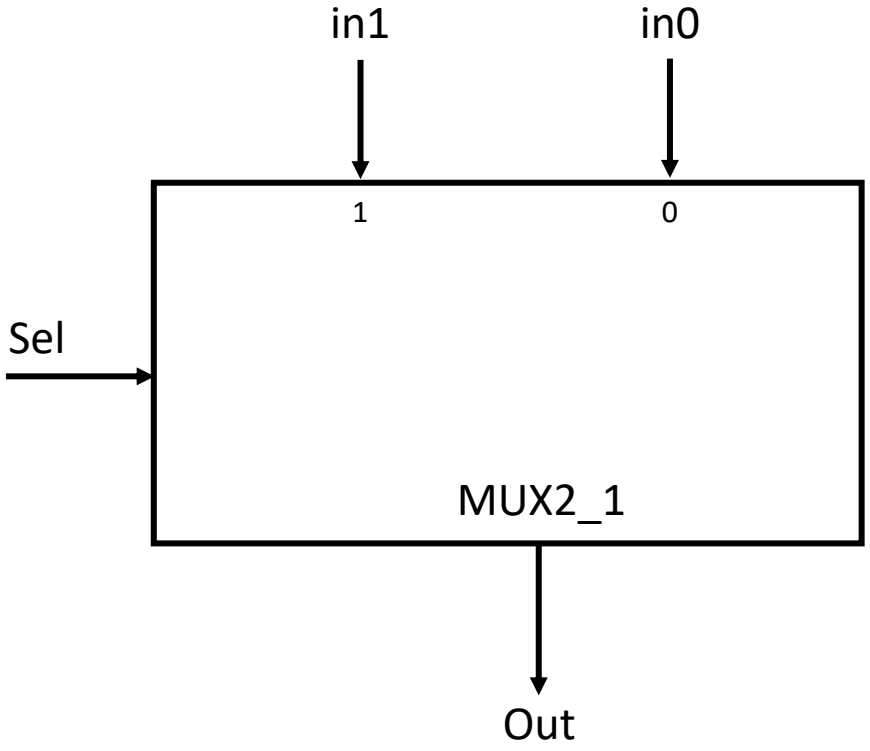
HiLo


ALUOut
HiOut
LoOut
ShifterOut
AND
OR
ADD
SUB
SLT
MFHI
MFLO
SLL
SignaltoMUX
MUX
dataOut

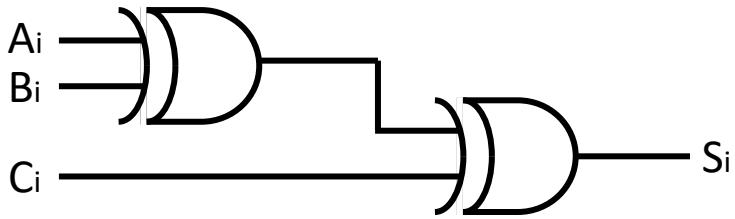
MUX

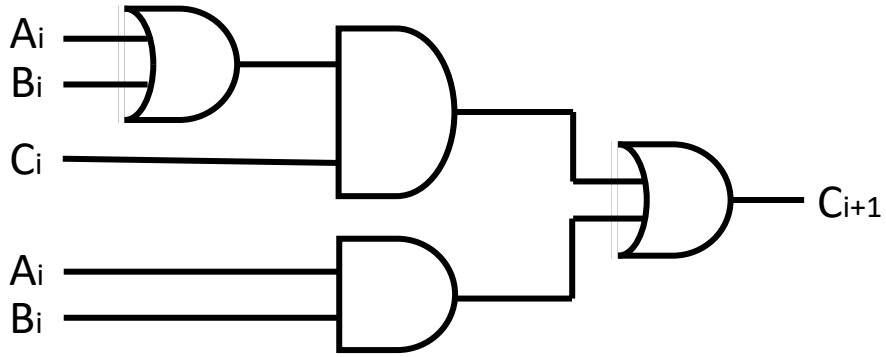

in3
in2
in1
in0
b100010
b100000
b100101
b100100
Sel[5:0]
MUX4_1
Out

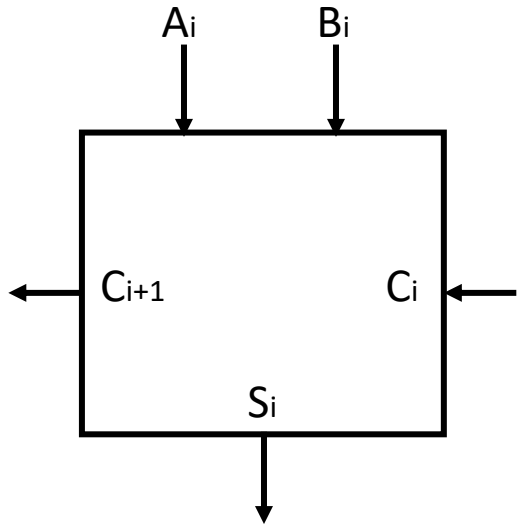
MUX4_1


in1
in0
1
0
Sel
MUX2_1
Out

MUX2_1

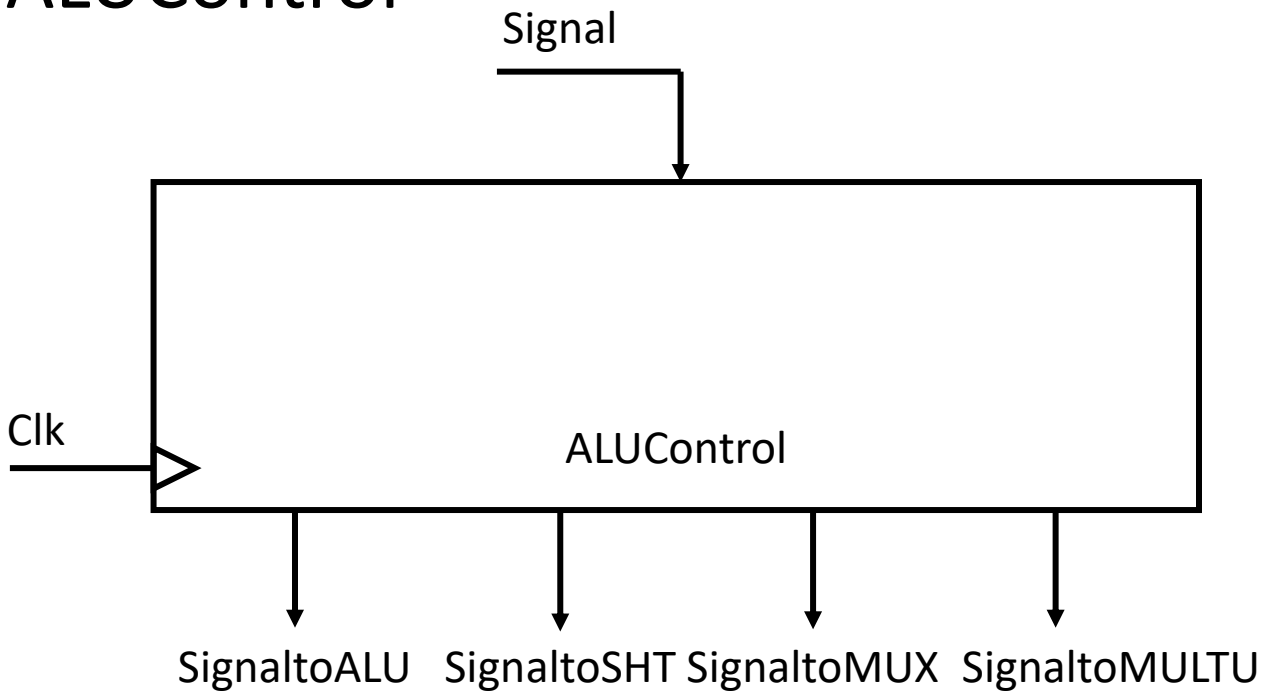


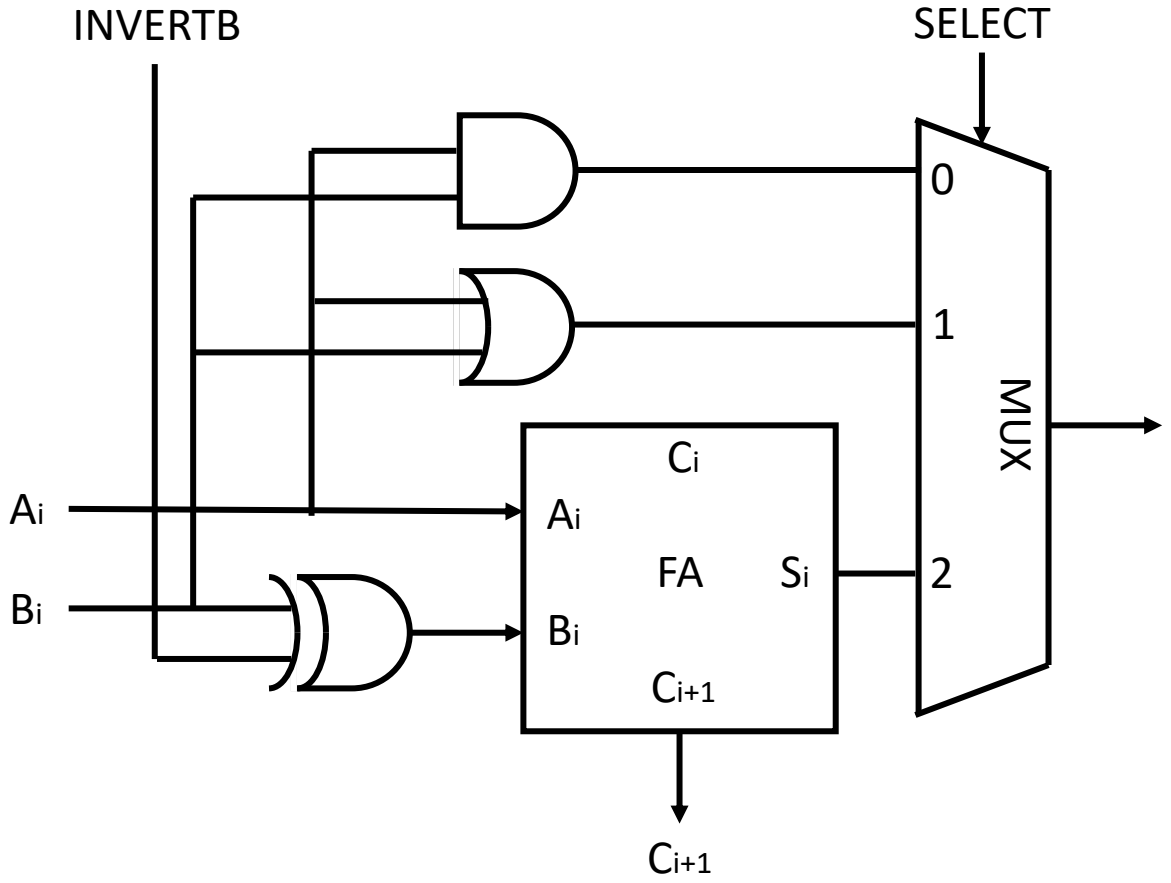




FullAdder

ALUControl





1bit ALU