



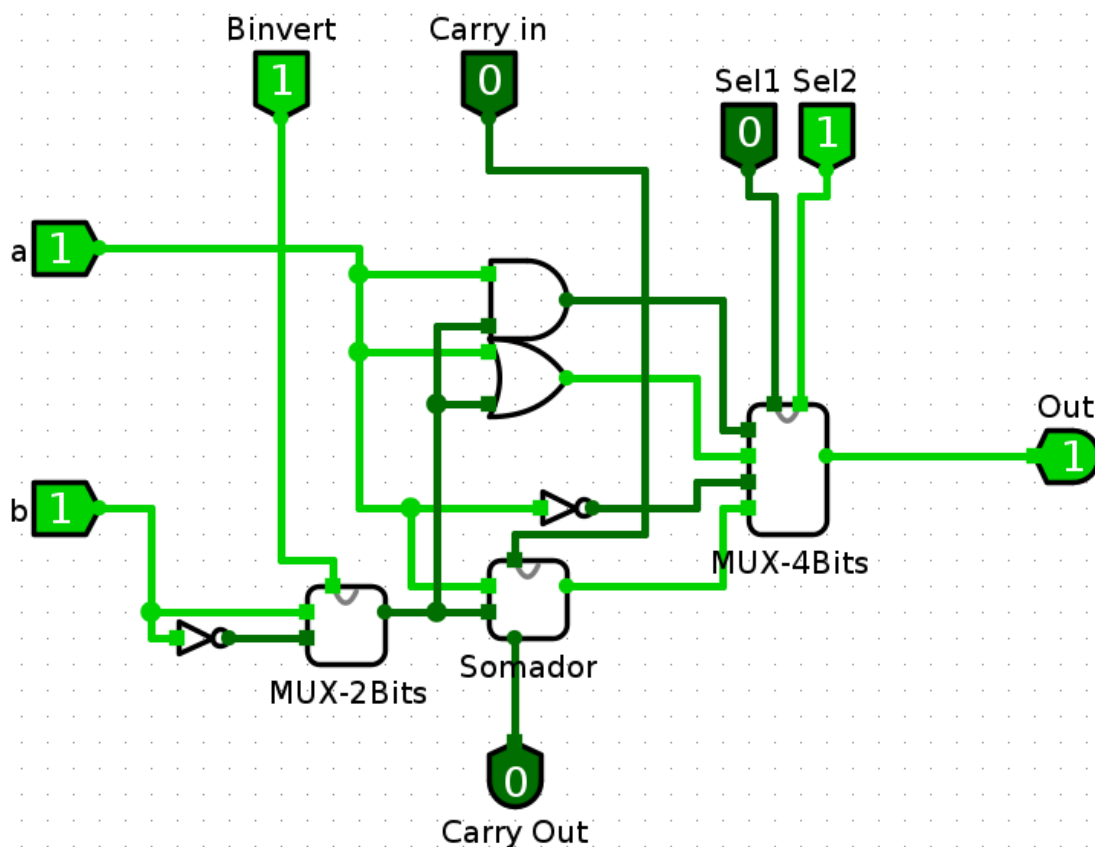
**Pontifícia Universidade Católica de Minas Gerais**  
**Instituto de Ciências Exatas e Informática**  
**Disciplina:** Arquitetura de Computadores II  
**Atividade:** Exercício Prático II

**Prof.:** Romanelli

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**Parte 1 - (Estudo da ALU usando o Logisim):**

**1. Montagem da ULA - 1Bit**

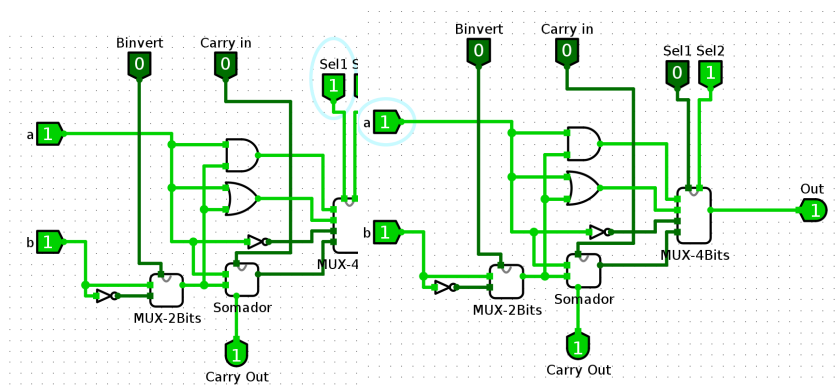


Op. Code (Operation)	Instrução (Result)
0	AND (a,b)
1	OR (a,b)
2	NOT (a)
3	SOMA(a,b)

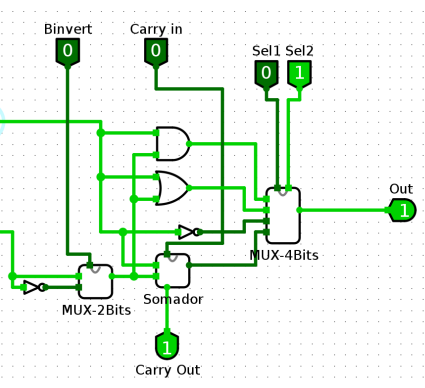
## 2. Tabela de testes da ULA de 1 Bit

Teste	A	B	OP	Binvert	Resultado	Carry Out
1	0	1	00 - AND(A,B)	0	0	0
2	1	1	01 - OR(A,B)	0	1	1
3	1	1	11 - SOMA(A,B)	0	0	1
4	1	1	10 - NOT(A)	0	0	1
5	1	1	11 - SOMA(A,-B)	1	1	0

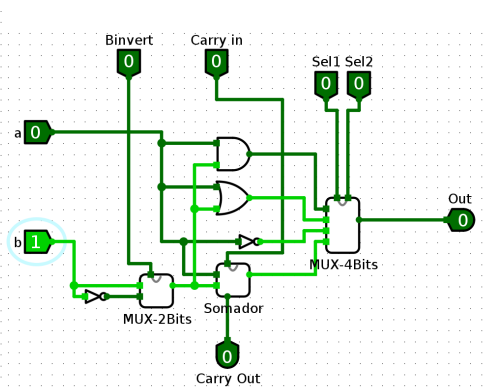
Teste 1: AND(A,B)



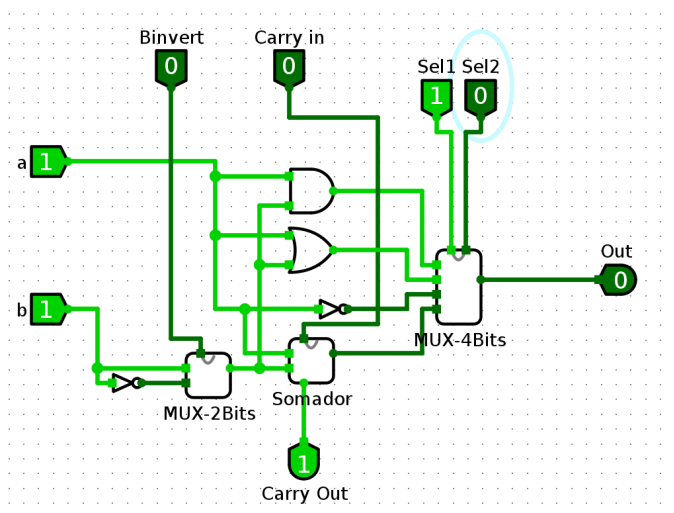
Teste 2: OR(A,B)



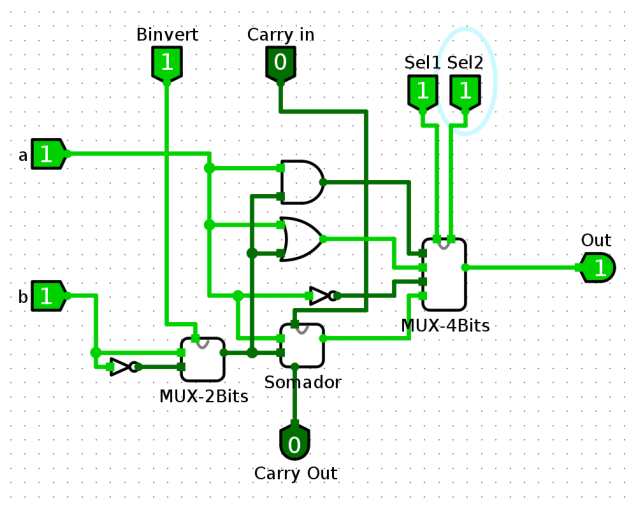
Teste 3: SOMA(A,B)



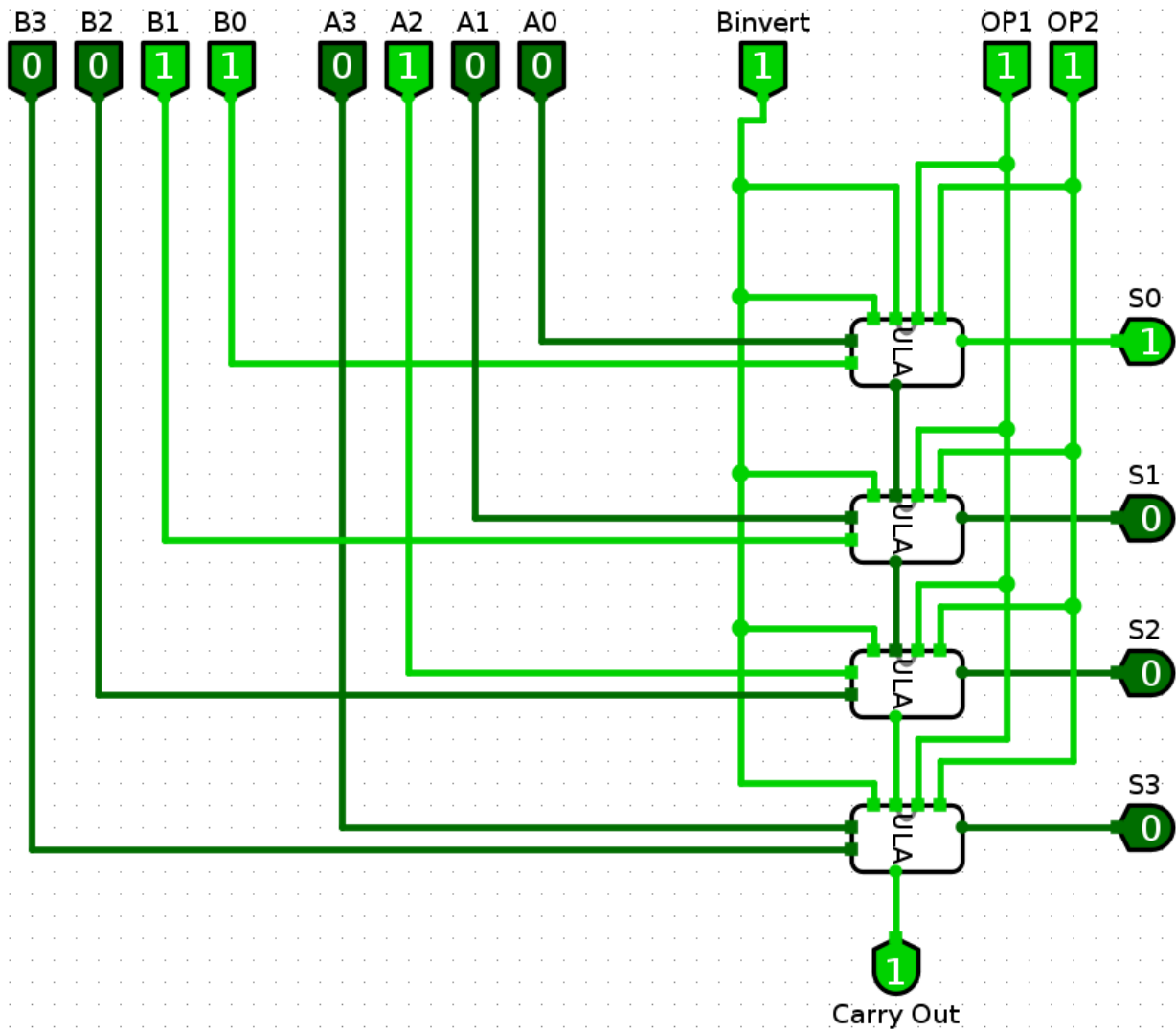
Teste 4: NOT(A)



Teste 5: SOMA(A,-B)



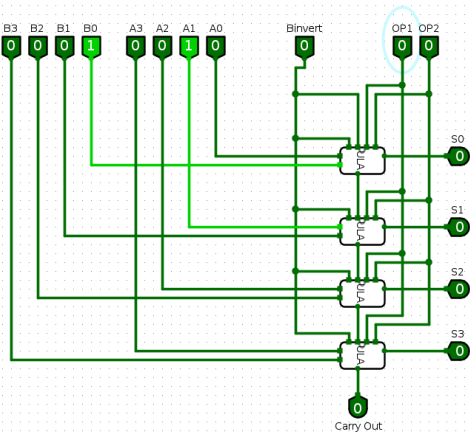
### 3. Montagem da ULA - 4 Bits



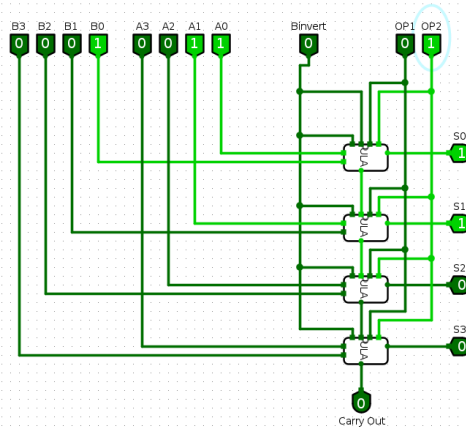
#### 4. Tabela de testes da ULA de 4Bits

Teste	A	B	Instrução realizada	Binário (A,B,OP.code)	Valor em Hexa (0x ...)	Resultado em Binário
1	2	1	and(A,B)	0010 0001 00	(0000 1000 0100) = 0x084	0000
2	2	3	OR(A,B)	0010 0011 01	(0000 1000 1101) = 0x08D	0011
3	2	3	SOMA(A,B)	0010 0011 11	(0000 1000 1111) = 0x08F	0101
4	12	3	NOT(A)	1100 0011 10	(0011 0000 1110) = 0x30E	0011
5	12	13	AND(B,A)	1100 1101 11	(0011 0011 0111) = 0x337	1100

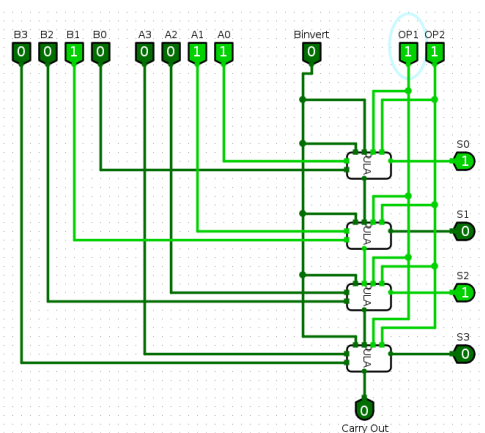
Teste 1: AND(A,B)



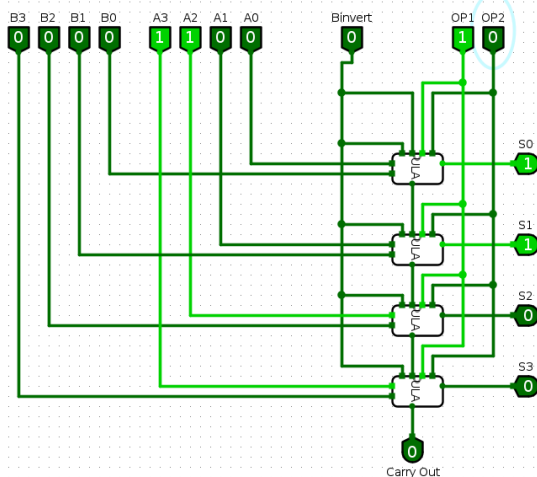
Teste 2: AND(A,B)



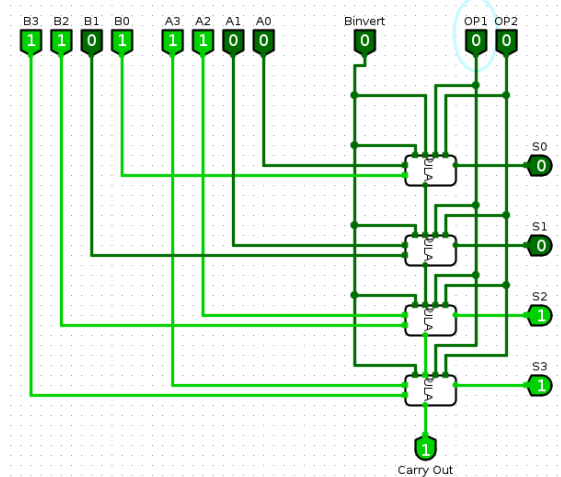
Teste 3: SOMA(A,B)



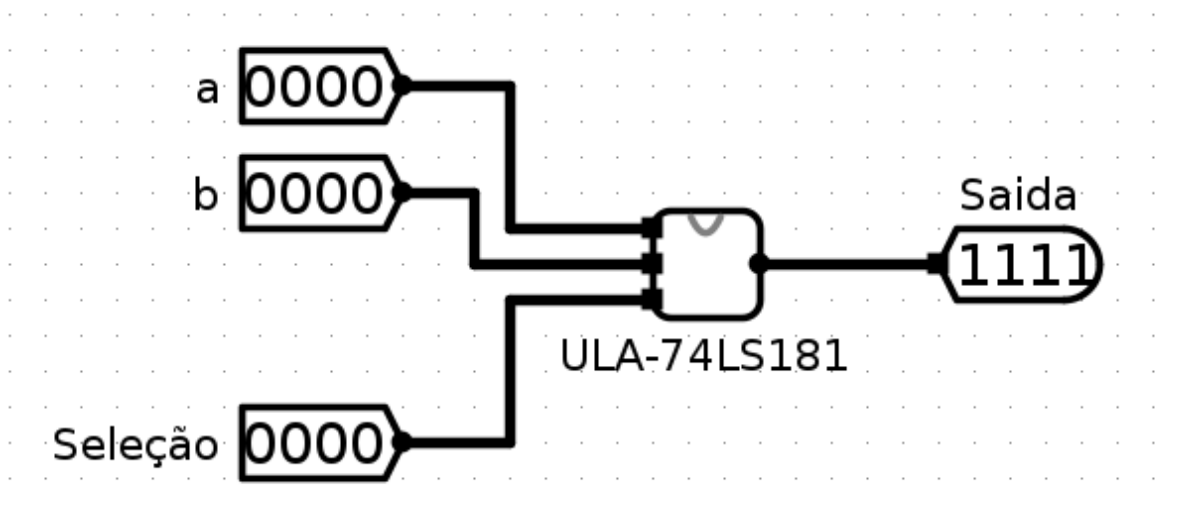
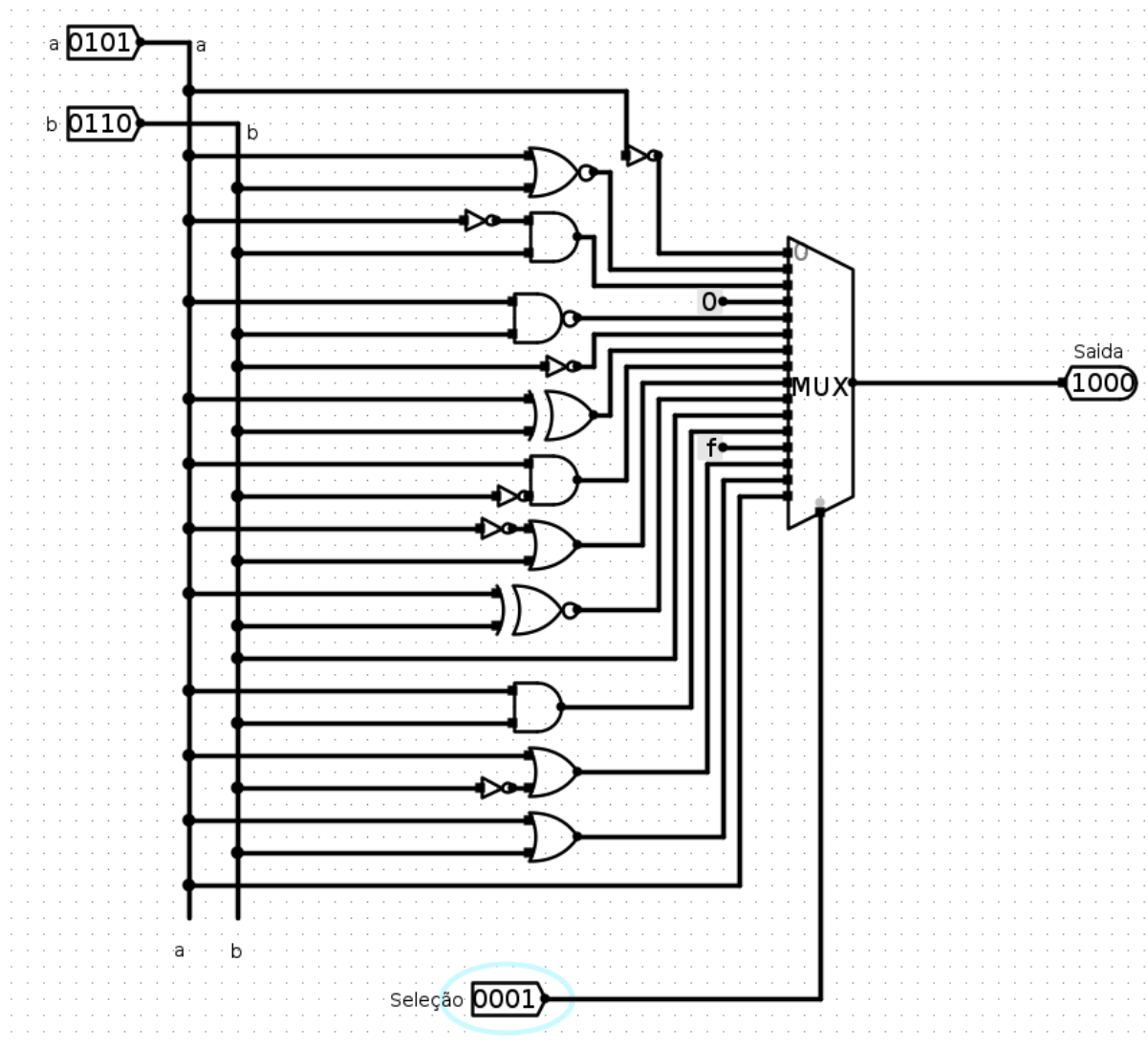
Teste 4: NOT(A)



Teste 5: AND(B,A)



## Parte 2 - (Estudo do circuito 74181): (Execução da instrução 0001)



## 5. Tabela de testes da ULA 74181

Instruções	Binário	Resultado da Operação
450	0100 0101 0000	1011
CB1	1100 1011 0001	0000
A32	1010 0011 0010	0001
C43	1100 0100 0011	0000
124	0001 0010 0100	1111
785	0111 1000 0101	0111
9B6	1001 1100 0110	0101
CD7	1100 1101 0111	0000
FE8	1111 1110 1000	1110
649	0110 0100 1001	1101
D9A	1101 1001 1010	1001
FCB	1111 1100 1011	1100
63C	0110 0011 1100	1111
98D	1001 1000 1101	1111
76E	0111 0110 1110	0111
23F	0010 0011 1111	0010

## 6. Resposta da pergunta: Se o objetivo fosse realmente testar esta ULA, quantas linhas a nossa tabela verdade deveria ter, ou seja na verdade a tabela que você preencheu deveria ter quantas linhas?

- A tabela deveria ter 4096 Linhas, para que todas as possibilidades fossem testadas

Link de acesso ao meu gitHub com o arquivo dos circuitos no logisim: