

Exercício Prático 02 - ULA

Disciplina: Arquitetura de Computadores II

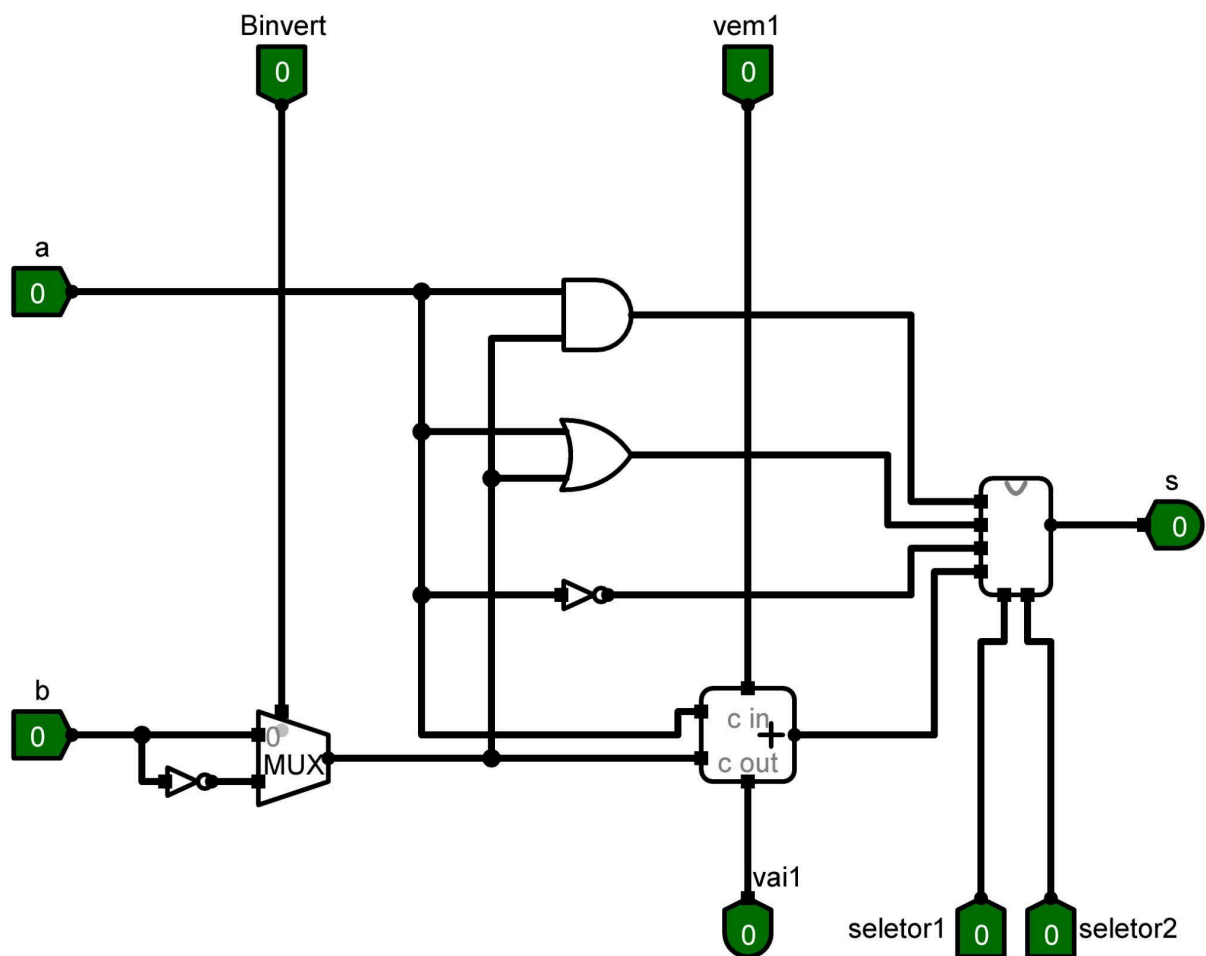
Data: 21/02/2025

Aluna: Alessandra Faria Rodrigues

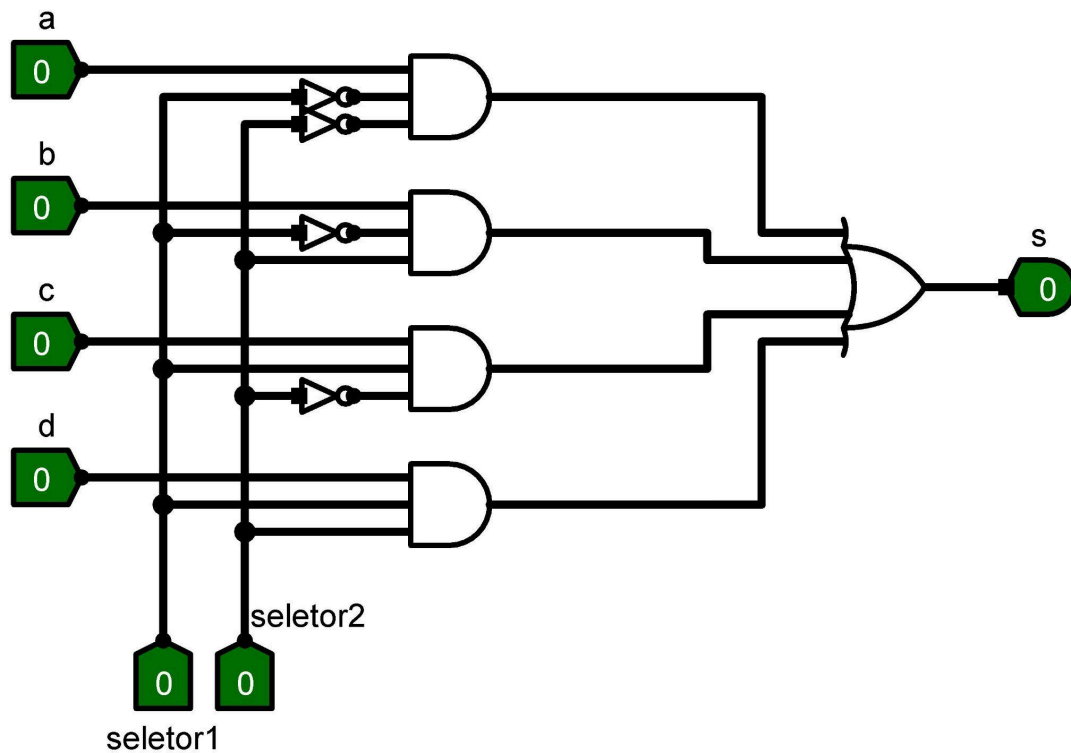
Matrícula: 828333

- PARTE 01

Unidade Lógica Aritmética (ULA) de 1 bit



Multiplexador de 2 seletores



Teste da ULA de acordo com o seguinte roteiro:

Início: A=0;

B=1;

AND(A,B);

A=1;

B=1;

OR(A,B);

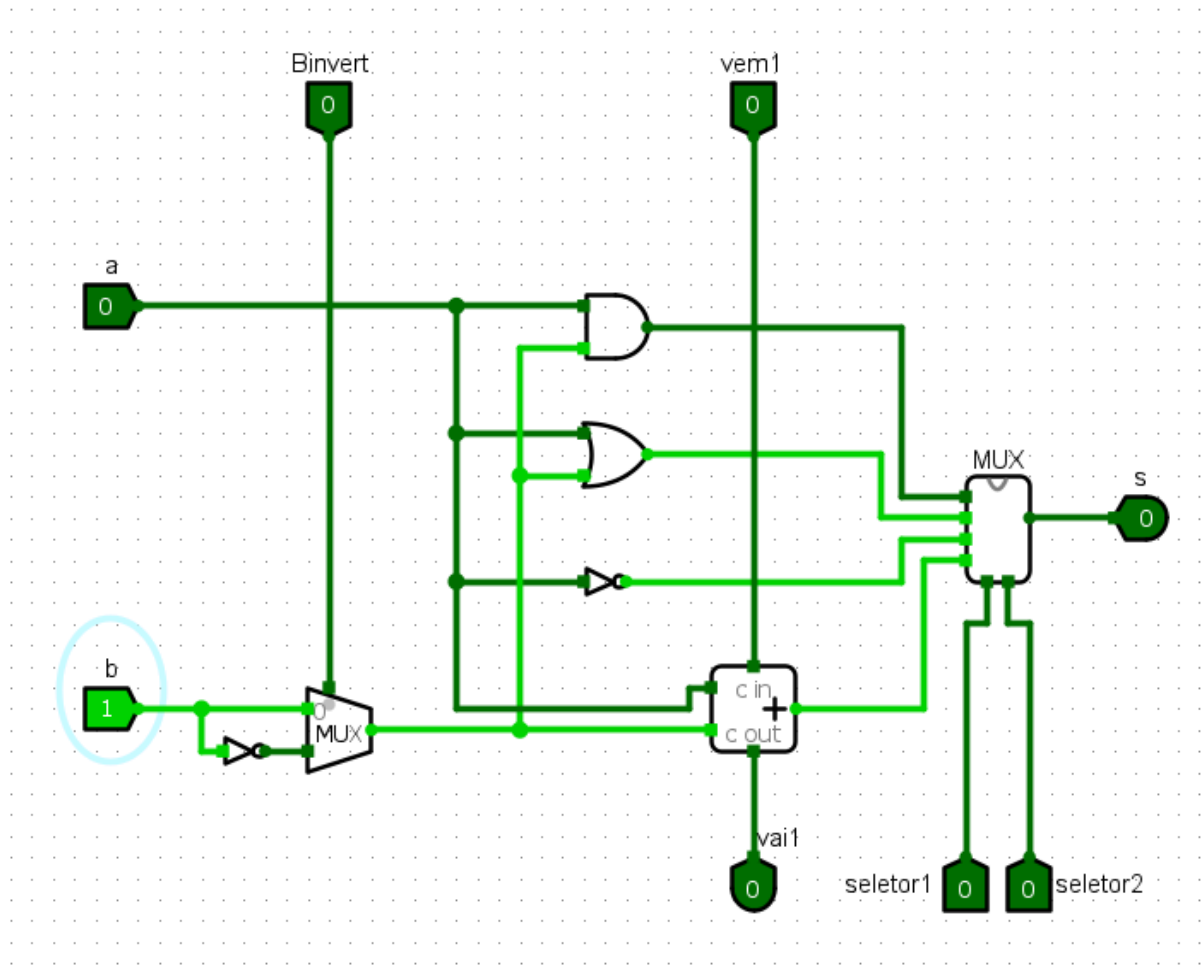
SOMA(A,B);

NOT(A);

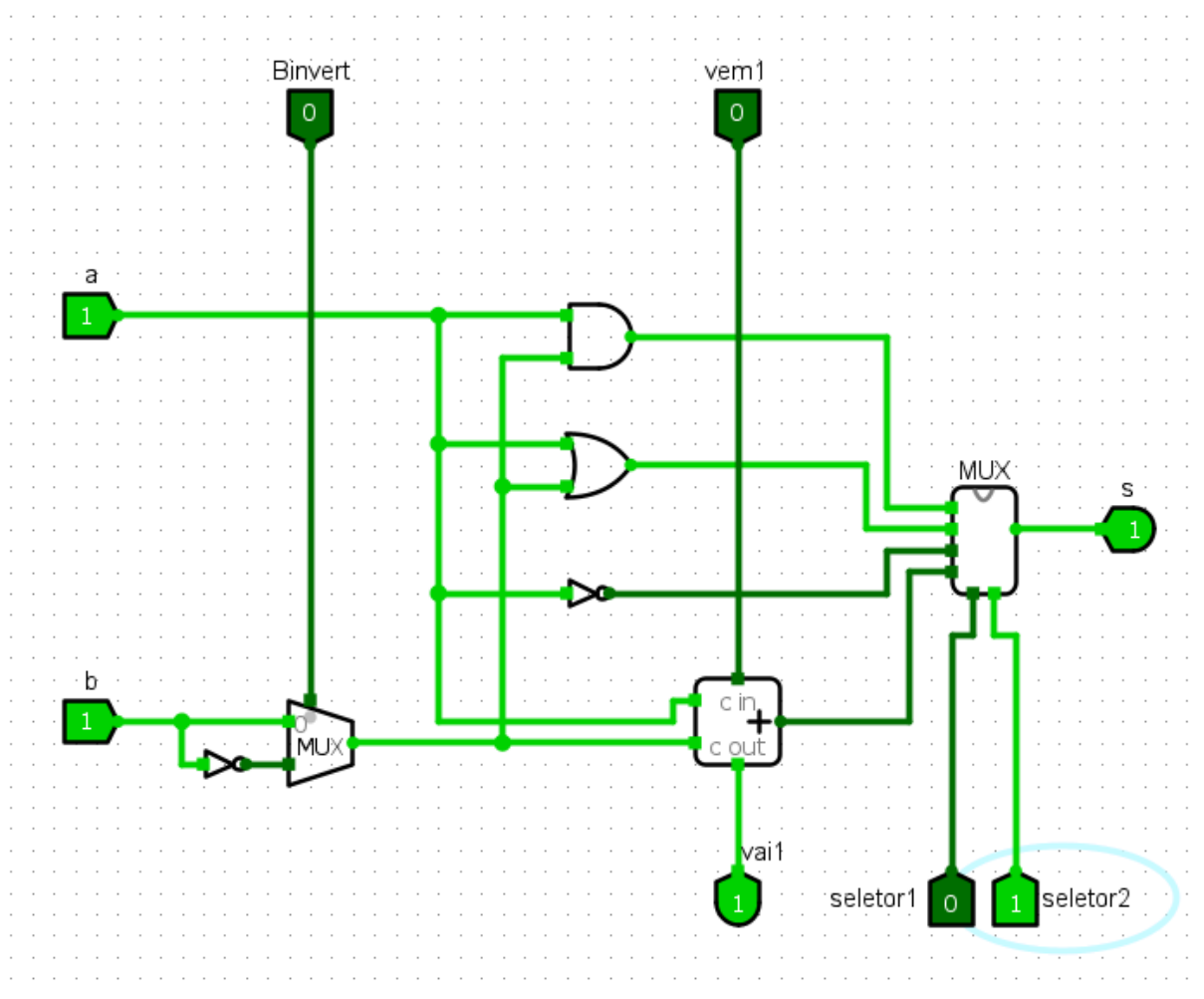
SOMA (A,-B);

Fim.

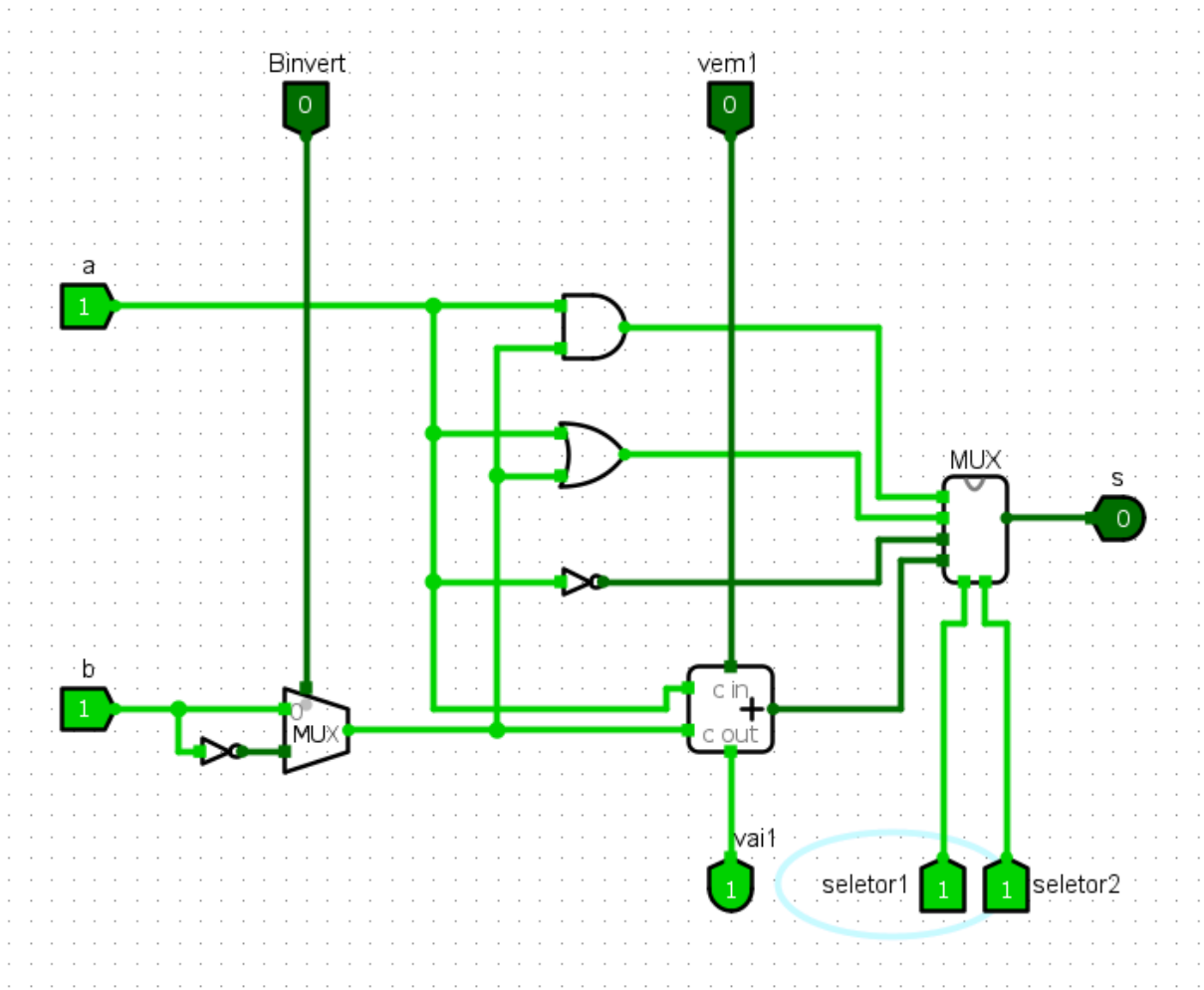
AND



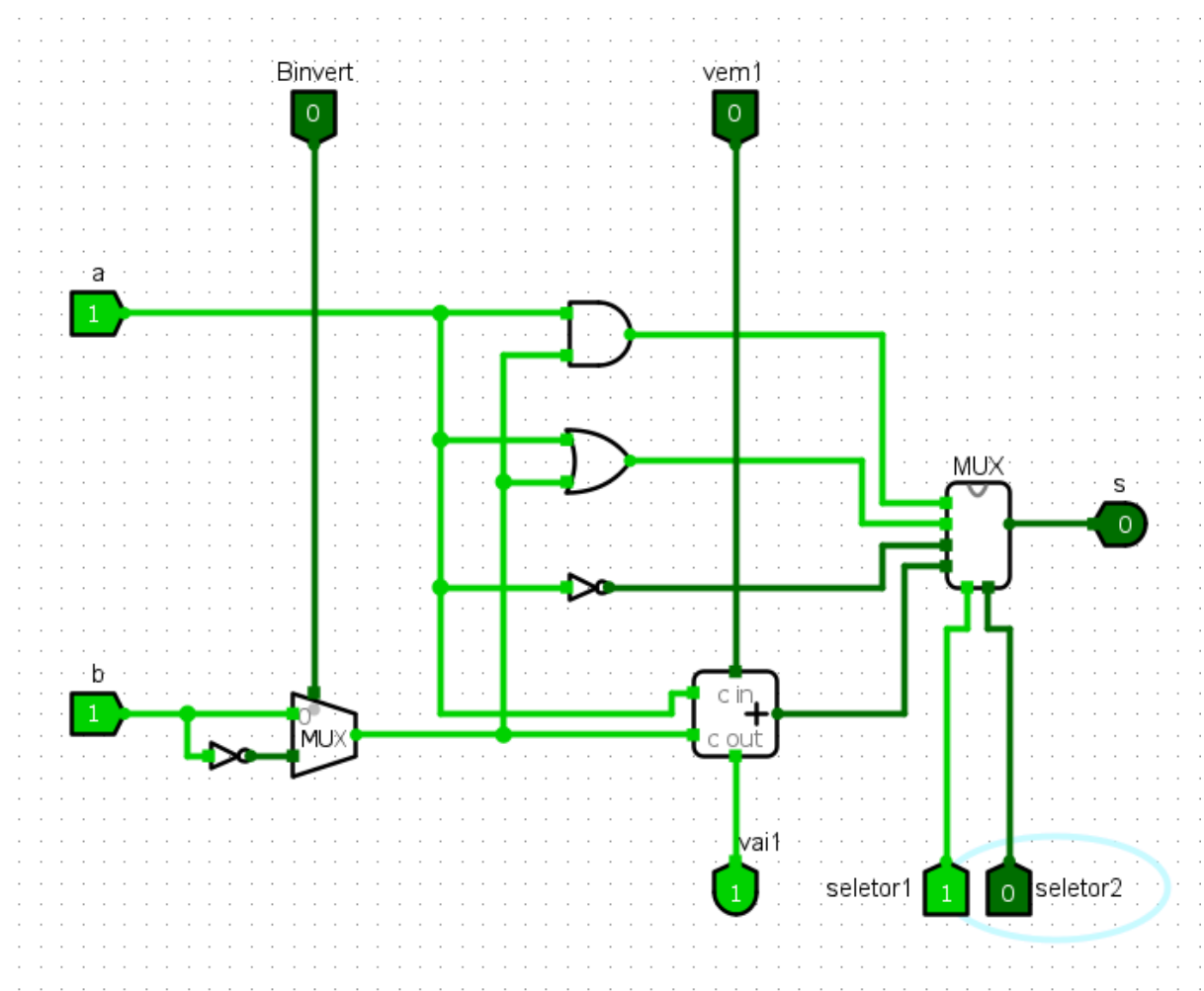
OR



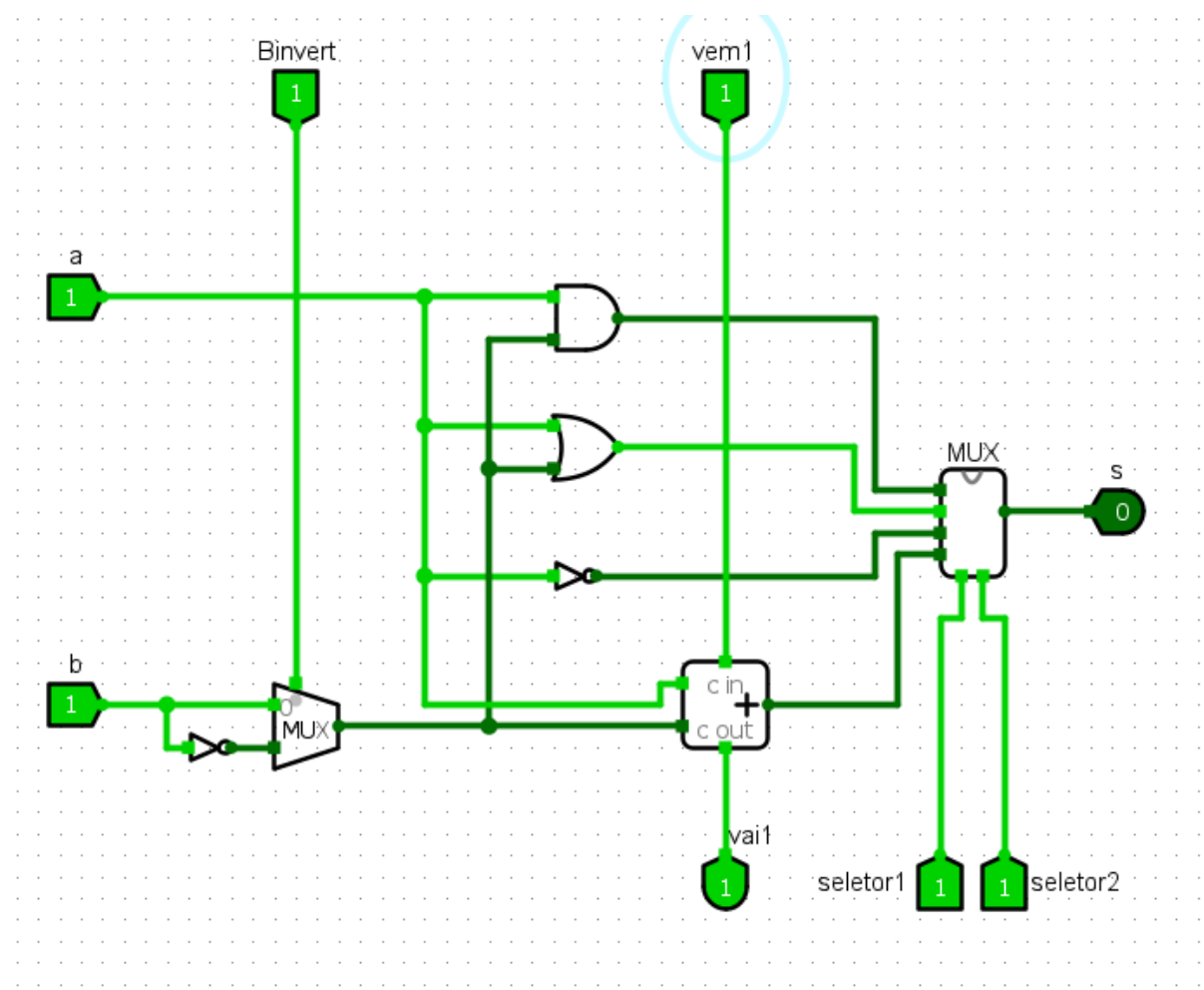
SOMA



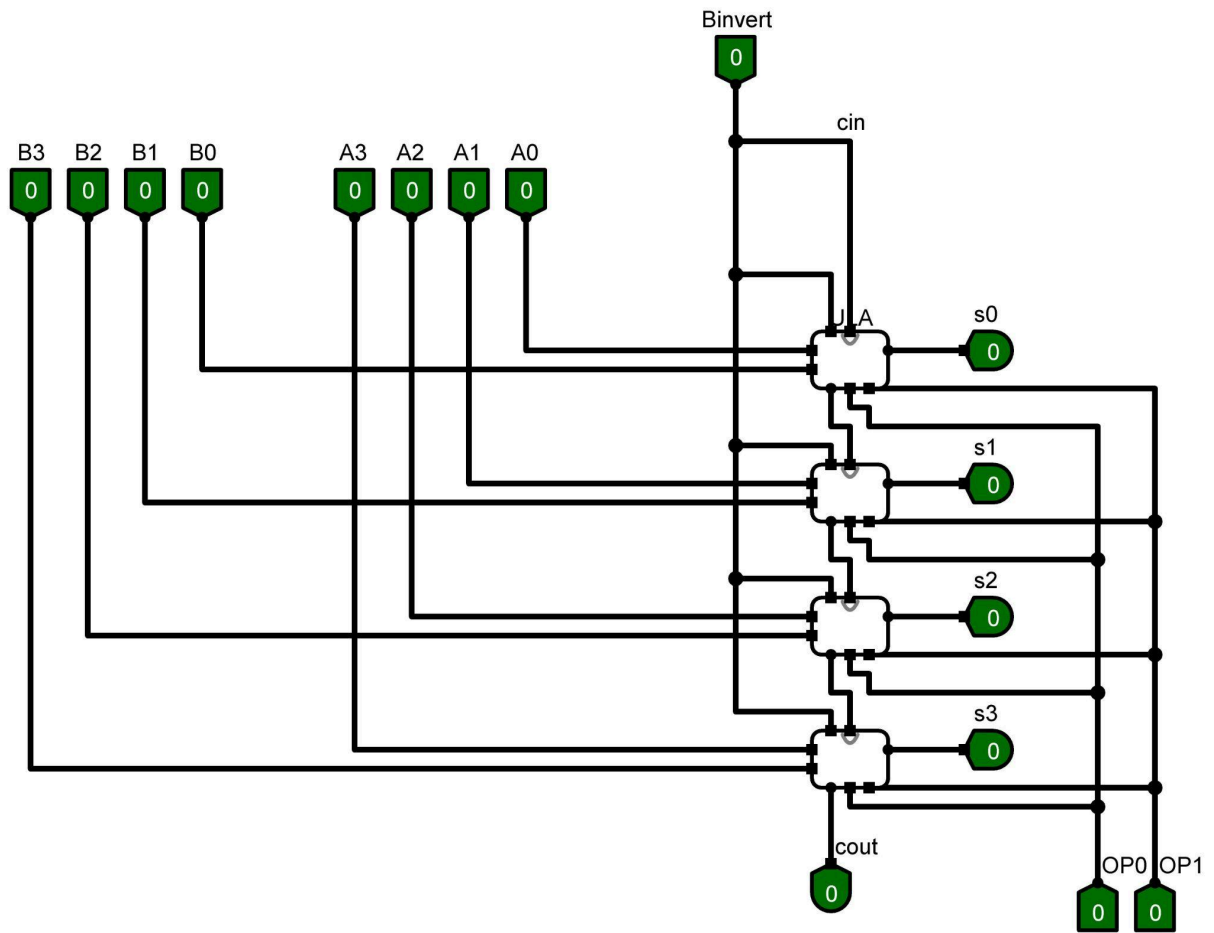
NOT



SOMA (A,-B);



ULA de 4 bits



Teste da ULA de acordo com o seguinte roteiro:

Início:

A=2; (ou A=0010)

B=1; (ou B=0001)

AND(A,B);

B=3; (ou B=0011)

OR(A,B);

SOMA(A,B);

A=12; (ou A=1100)

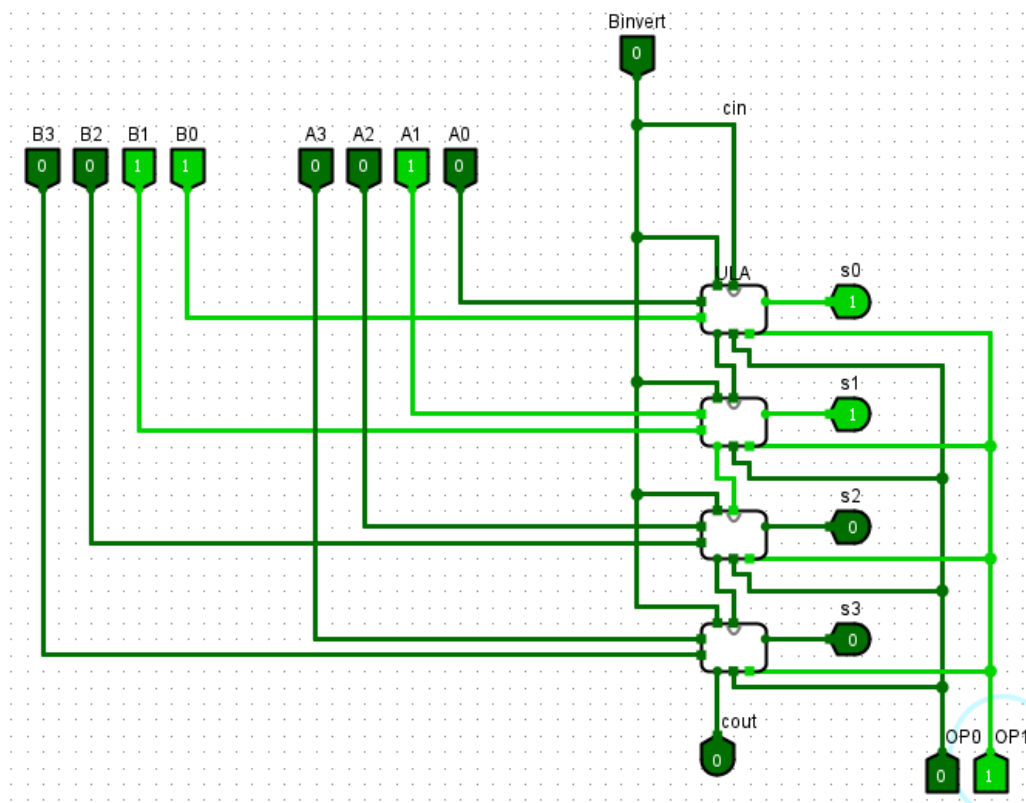
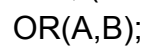
NOT(A);

B=13; (ou B=1101)

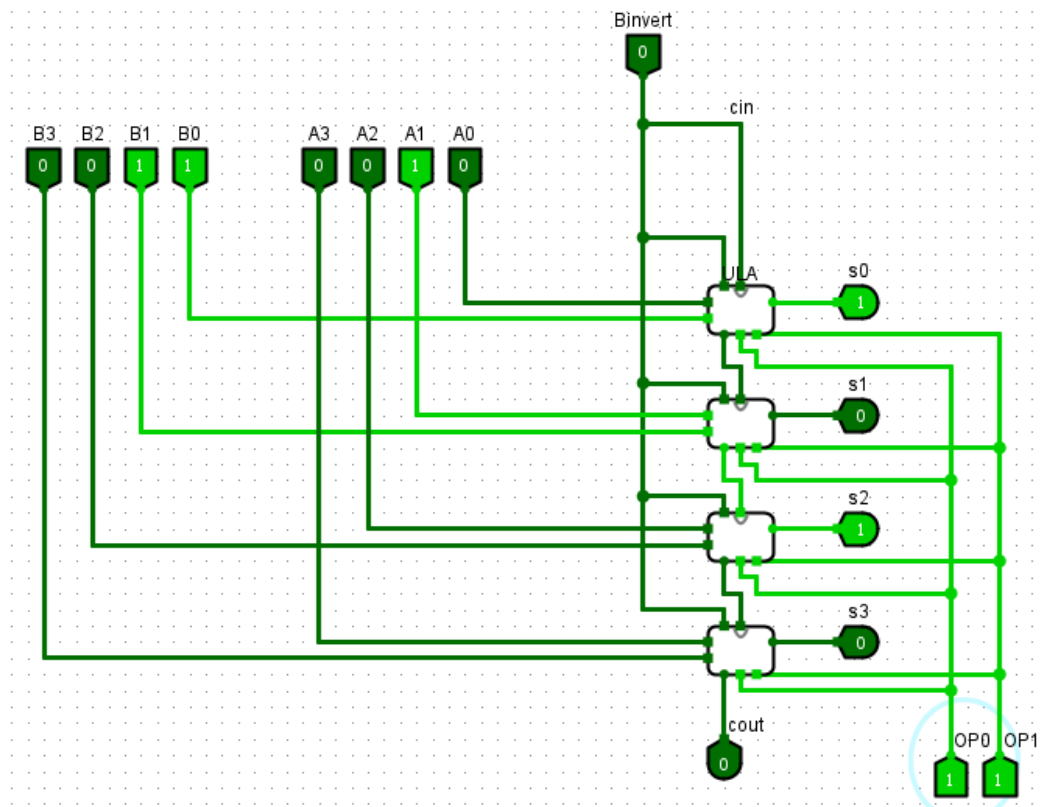
AND(B,A);

Fim.

AND(A,B);

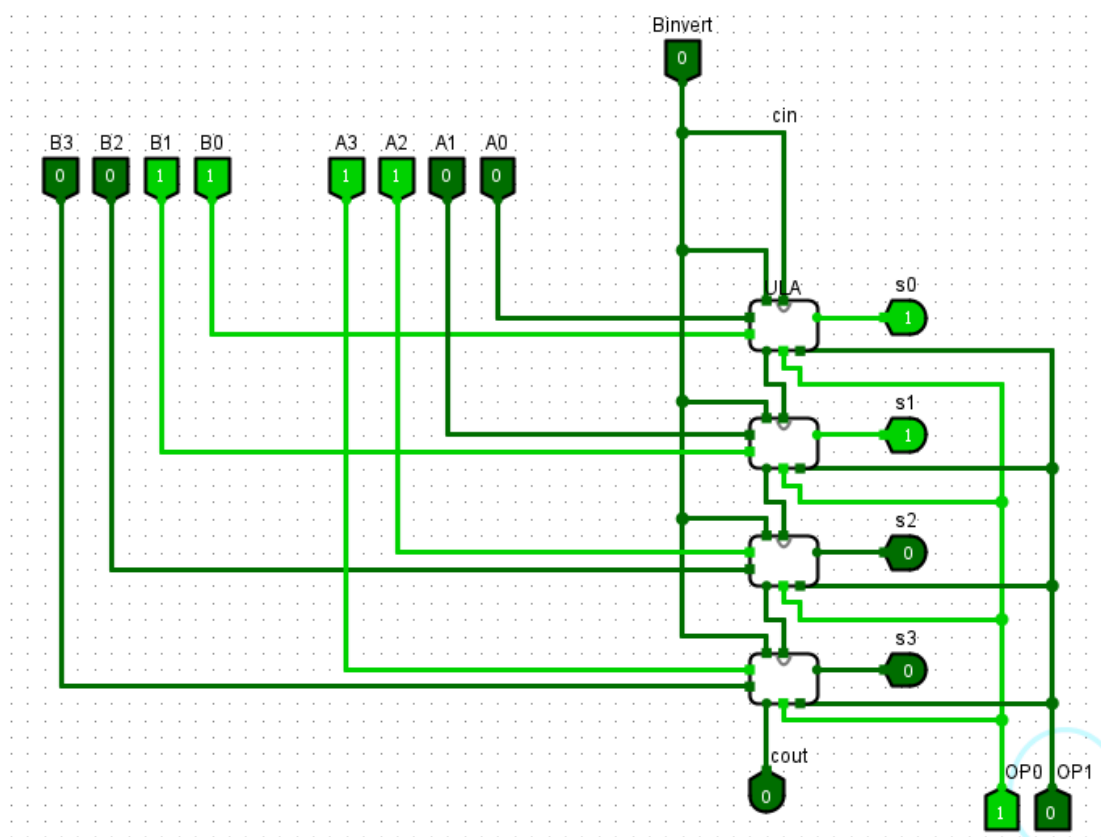


SOMA(A,B);

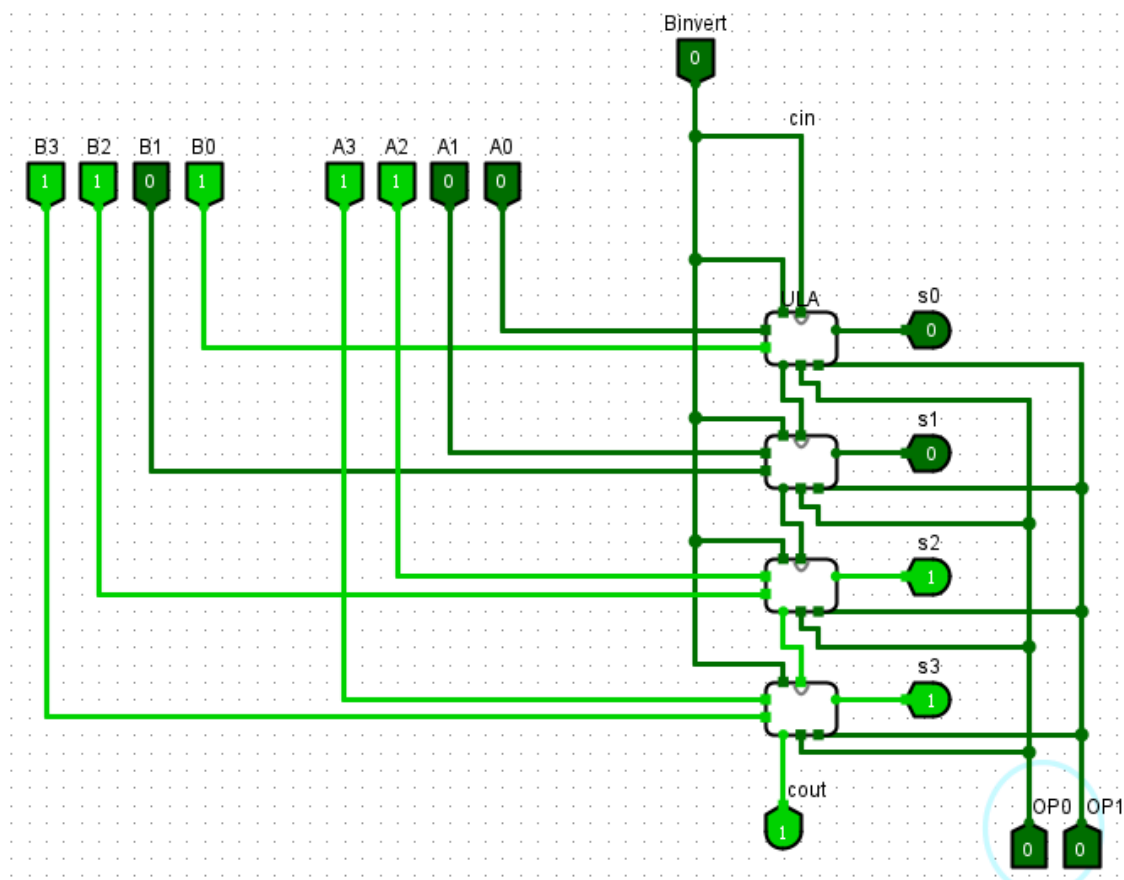


A=12; (ou A=1100)

NOT(A);



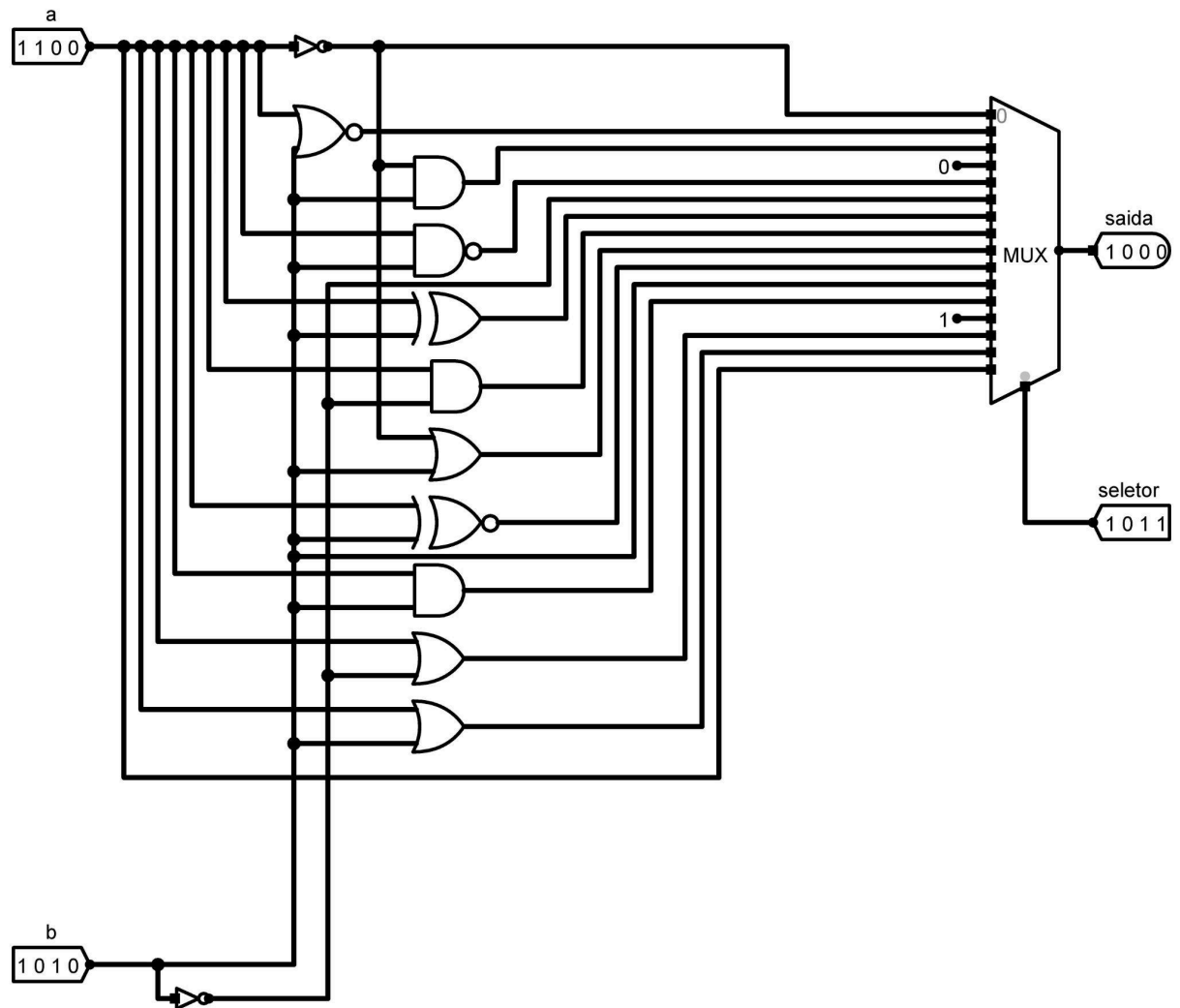
B=13; (ou B=1101)
AND(B,A);



Instrução realizada	Binário (A,B,Op.code)	Valor em Hexa (0x ...)	Resultado em binário
AND(A,B)	0010 0001 00	(0000 1000 0100) = 0x084	0000
OR(A,B)	0010 0011 01	0000 1000 1101 = 0x08D	0011
SOMA(A,B)	0010 0011 11	0000 1000 1111 = 0x08F	0101
NOT(A)	1100 0011 10	0011 0000 1110 = 0x30E	0011
AND(B,A)	1101 1100 00	0011 0111 0000 = 0x370	1100

- PARTE 02

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Instruções	Binário (A,B,Op)	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 1011 0110	0010
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	0001
98D	1001 1000 1101	1111
76E	0111 0110 1110	0111
23F	0010 0011 1111	0010

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?

Resposta: 4 bits de entrada A + 4 bits de entrada B + 4 bits de seleção, portanto, $2^4 + 2^4 + 2^4 = 4096$ linhas