

```
1  LIBRARY ieee;
2  USE ieee.std_logic_1164.all;
3  USE ieee.numeric_std.all;
4
5  entity blocoOperacional is
6      port
7      (
8          InpA,InpB: in unsigned(3 downto 0);
9          selA: in std_logic;
10         wrA,wrB: in std_logic;
11         ALUop: in std_logic_vector(1 downto 0);
12         reset: in std_logic;
13
14         ALUout: buffer unsigned(4 downto 0)
15     );
16 end entity;
17
18 architecture behavior of blocoOperacional is
19     component multiplexador is
20         port
21         (
22             Inp0,Inp1: in unsigned(3 downto 0);
23             selA: in std_logic;
24
25             OutMux: out unsigned(3 downto 0)
26         );
27     end component;
28     signal OutMux: unsigned(3 downto 0);
29
30     component registrador is
31         port
32         (
33             DataIn: in unsigned(3 downto 0);
34             clock, reset: in std_logic;
35
36             DataOut: out unsigned(3 downto 0)
37         );
38     end component;
39     signal DataOutA,DataOutB: unsigned(3 downto 0);
40
41     component ULA is
42         port
43         (
44             A,B: in unsigned(3 downto 0);
45             ALUop: in std_logic_vector(1 downto 0);
46
47             ALUout: out unsigned(4 downto 0)
48         );
49     end component;
50
51     --signal ALUout4bits: unsigned(3 downto 0);
52
53 begin
54
55     --ALUout4bits <= ALUout(3 downto 0);
56
57     mux1: multiplexador port map(ALUout(3 downto 0), InpA, selA, OutMux);
58     regA: registrador port map(OutMux, wrA, reset, DataOutA);
59     regB: registrador port map(InpB, wrB, reset, DataOutB);
60     alu1: ULA port map(DataOutA, DataOutB, ALUop, ALUout);
61
62 end architecture;
```