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1: library IEEE;
2: use IEEE.std_logic_1164.all;
3: use IEEE.std_logic_textio.all;
4: use IEEE.std_logic_arith.all;
5: use STD.textio.all;
6:
7: entity alu_4_1_stdout_test is
8:
9: end alu_4_1_stdout_test;
10:
11: architecture test of alu_4_1_stdout_test is
12:
13: component alu_4
14:   port (
15:     A: in std_logic_vector(3 downto 0);
16:     B: in std_logic_vector(3 downto 0);
17:     Cin: in std_logic;
18:     S0: in std_logic;
19:     S1: in std_logic;
20:     G: out std_logic_vector(3 downto 0);
21:     Cout: out std_logic);
22: end component;
23:
24: for alu : alu_4 use entity work.alu_4(structural);
25:   signal ip1, ip2, op : std_logic_vector(3 downto 0);
26:   signal SEL: std_logic_vector(1 downto 0):="00";
27:   signal INPUTA: std_logic_vector(3 downto 0):="0010"; --input A is 2
28:   signal INPUTB: std_logic_vector(3 downto 0):="0011"; --input A is 3
29:   signal cin,s0, s1, cout: std_logic;
30:   signal CIN_INPUT: std_logic_vector(3 downto 0):="0000";
31:
32: procedure print_output is
33:   variable out_line: line;
34:
35:   begin
36:     write (out_line, string' (" A:"));
37:     write (out_line, ip1);
38:     write (out_line, string' (" B:"));
39:     write (out_line, ip2);
40:     write (out_line, string' (" S1:"));
41:     write (out_line, s1);
42:     write (out_line, string' (" S0:"));
43:     write (out_line, s0);
44:     write (out_line, string' (" Carry In:"));
45:     write (out_line, cin);
46:     writeline(output, out_line);
47:     write (out_line, string' (" Output:"));
48:     write (out_line, op);
49:     write (out_line, string' (" Carry Out:"));
50:     write (out_line, cout);
51:     writeline(output, out_line);
52:     writeline(output, out_line);
53: end print_output;
54:
55:
56: begin
57:
58: alu : alu_4 port map (ip1, ip2,cin,s0, s1,op,cout);
59:
60: CIN_INPUT <= unsigned(CIN_INPUT)+ unsigned' ("0001") after 8 ns;
61: SEL <= unsigned(SEL)+ unsigned' ("01") after 2 ns;
62:

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63: io_process: process
64:   variable out_line: line;
65:
66: begin
67:   write(out_line, string' ("Running all possible combinations. Will take s
ome time to run !!!!"));
68:   writeline(output, out_line);
69:   write(out_line, string' ("Type 'run 1024 ns' to continue or 'exit' to qu
it"));
70:   writeline(output, out_line);
71:   write(out_line, string' ("Redirect output using > if required and multip
le ^C's to quit"));
72:   writeline(output, out_line);
73:
74:   for i in 0 to 511 loop
75:     wait for 1 ns;
76:
77:     ip2<= INPUTA;
78:     ip1<= INPUTB;
79:     cin<= CIN_INPUT(0);
80:     s0<= SEL(0);
81:     s1<= SEL(1);
82:
83:     wait for 1 ns;
84:
85:     print_output;
86:   end loop;
87: end process io_process;
88:
89: end test;

```