bcd_to_84_2_1_tb.vhd

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1  ----------------------------------------------------------------------------------
2  --
3  -- Title       : bcd_to_84_2_1 testbench
4  -- Design      :
5  -- Author      : Dongyun Lee
6  -- Company     : Stony Brook University
7  --
8  ----------------------------------------------------------------------------------
9  --
10 -- File        : \\Mac\Home\Documents\Aldec_Codes\test\test\src\test.vhd
11 -- Generated   : 2024-03-04  15:00:00
12 -- From        : interface description file
13 -- By          : Itf2Vhdl ver. 1.22
14 --
15 ----------------------------------------------------------------------------------
16 --
17 -- Description : testbench for bcd_to_84_2_1 using truth table with single process
   testbench
18 ----------------------------------------------------------------------------------
19
20 library IEEE;
21 use IEEE.STD_LOGIC_1164.ALL;
22 use ieee.numeric_std.all;
23 use work.all;
24
25 entity bcd_to_84_2_1_tb is
26 end bcd_to_84_2_1_tb;
27
28 architecture tb_architecture of bcd_to_84_2_1_tb is
29
30     -- Stimulus signals - signals mapped to the inputs of tested entity
31     signal d, c, b, a : std_logic;
32     -- Observed signals - signals mapped to the outputs of tested entity
33     signal p, q, r, s : std_logic;
34
35 begin
36     -- Unit Under Test port map
37     UUT : entity bcd_to_84_2_1
38     port map (
39             p => p, q => q, r => r, s => s,
40             d => d, c => c, b => b, a => a
41         );
42
43     verify : process
44     constant period : time := 20 ns;
45
46     begin
47
48         d <= '0';
49         c <= '0';
50         b <= '0';
51         a <= '0';
52         wait for period;
53         assert (p = '0' and q = '0' and r = '0' and s = '0')
54         report "Test failed for input combination 0000"
55         severity error;
56
```

```
57          d <= '0';
58          c <= '0';
59          b <= '0';
60          a <= '1';
61          wait for period;
62          assert (p = '0' and q = '1' and r = '1' and s = '1')
63          report "Test failed for input combination 0001"
64          severity error;
65
66          d <= '0';
67          c <= '0';
68          b <= '1';
69          a <= '0';
70          wait for period;
71          assert (p = '0' and q = '1' and r = '1' and s = '0')
72          report "Test failed for input combination 0010"
73          severity error;
74
75          d <= '0';
76          c <= '0';
77          b <= '1';
78          a <= '1';
79          wait for period;
80          assert (p = '0' and q = '1' and r = '0' and s = '1')
81          report "Test failed for input combination 0011"
82          severity error;
83
84          d <= '0';
85          c <= '1';
86          b <= '0';
87          a <= '0';
88          wait for period;
89          assert (p = '0' and q = '1' and r = '0' and s = '0')
90          report "Test failed for input combination 0100"
91          severity error;
92
93          d <= '0';
94          c <= '1';
95          b <= '0';
96          a <= '1';
97          wait for period;
98          assert (p = '1' and q = '0' and r = '1' and s = '1')
99          report "Test failed for input combination 0101"
100         severity error;
101
102         d <= '0';
103         c <= '1';
104         b <= '1';
105         a <= '0';
106         wait for period;
107         assert (p = '1' and q = '0' and r = '1' and s = '0')
108         report "Test failed for input combination 0110"
109         severity error;
110
111         d <= '0';
112         c <= '1';
113         b <= '1';
114         a <= '1';
115         wait for period;
116         assert (p = '1' and q = '0' and r = '0' and s = '1')
```

```
        report "Test failed for input combination 0111"
        severity error;

        d <= '1';
        c <= '0';
        b <= '0';
        a <= '0';
        wait for period;
        assert (p = '1' and q = '0' and r = '0' and s = '0')
        report "Test failed for input combination 1000"
        severity error;

        d <= '1';
        c <= '0';
        b <= '0';
        a <= '1';
        wait for period;
        assert (p = '1' and q = '1' and r = '1' and s = '1')
        report "Test failed for input combination 1001"
        severity error;

    end process verify;
end tb_architecture;

```