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2  --
3  -- Title       : slv_spi_rx_shifter_tb
4  -- Design      : prelab10
5  -- Author      : Dongyun Lee
6  -- Company     : Stony Brook University
7  --
8  -----
9  --
10 -- File        : \\Mac\Home\Documents\Aldec_Codes\prelab10\prelab10\src\slv_spi_rx_shift
    b.vhd
11 -- Generated   : Sun Apr 21 22:43:23 2024
12 -- From        : interface description file
13 -- By          : Itf2Vhdl ver. 1.22
14 --
15 -----
16 --
17 -- Description :
18 --
19 -----
20 --
21 library ieee;
22 use ieee.std_logic_1164.all;
23 use ieee.numeric_std.all;
24 use work.all;
25
26
27 entity slv_spi_rx_shifter_tb is
28 end slv_spi_rx_shifter_tb;
29
30 architecture slv_spi_rx_shifter_tb of slv_spi_rx_shifter_tb is
31
32 signal rxd, rst_bar, sel_bar, clk, shift_en : std_logic; -- input
33 signal rx_data_out : std_logic_vector(7 downto 0); --output
34
35 constant clk_period : time := 20 ns;
36
37 begin
38     UUT : entity slv_spi_rx_shifter
39         port map(
40             rxd => rxd,
41             rst_bar => rst_bar,
42             sel_bar => sel_bar,
43             clk => clk,
44             shift_en => shift_en,
45             rx_data_out => rx_data_out
46         );
47
48     clk_process : process
49     begin
50         while true loop
51             clk <= '0';
52             wait for clk_period / 2;

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53         clk <= '1';
54         wait for clk_period / 2;
55     end loop;
56 end process;
57
58 -- Stimulus process
59 stim_proc: process
60 begin
61     -- Initialize Inputs
62     rst_bar <= '0'; -- Apply reset
63     wait for 55 ns; -- Keep reset active for 110 ns
64     rst_bar <= '1'; -- Release reset
65     shift_en <= '1'; -- Enable shift
66     sel_bar <= '0';
67     -- Simulate input data
68     wait for 40 ns; -- Wait some time before starting data
transmission
69     rxd <= '1'; wait for 20 ns; -- Send bit 1
70     rxd <= '0'; wait for 20 ns; -- Send bit 0
71     rxd <= '1'; wait for 20 ns; -- Send bit 1
72     rxd <= '1'; wait for 20 ns; -- Send bit 1
73     rxd <= '0'; wait for 20 ns; -- Send bit 0
74
75     shift_en <= '0'; -- Disable shifting
76     wait for 100 ns; -- Wait while shift is disabled
77
78     rxd <= '1'; wait for 20 ns; -- Attempt to send more data
79     shift_en <= '1'; -- Re-enable shifting
80     rxd <= '0'; wait for 20 ns; -- Continue sending data
81
82     wait for 100 ns; -- Observe the output
83     wait;
84 end process;
85
86 end slv_spi_rx_shifter_tb;
87

```