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2  -- Name: Capt Jeff Falkinburg
3  -- Date: Spring 2016
4  -- Course: ECE 281
5  -- File: Lsn20_muxFour.vhd
6  -- HW:   Lecture 20
7  -- Purp: Testbench for Structural implementation of a 4 to 1 Multiplexer
8  -- Doc:  None
9  -- Academic Integrity Statement: I certify that, while others may have
10 -- assisted me in brain storming, debugging and validating this program,
11 -- the program itself is my own work. I understand that submitting code
12 -- which is the work of other individuals is a violation of the honor
13 -- code. I also understand that if I knowingly give my original work to
14 -- another individual is also a violation of the honor code.
15  -----
16  LIBRARY ieee;
17  USE ieee.std_logic_1164.ALL;
18
19  ENTITY muxFour_tb IS
20  END muxFour_tb;
21
22  ARCHITECTURE behavior OF muxFour_tb IS
23
24      -- Component Declaration for the Unit Under Test (UUT)
25
26      COMPONENT muxFour
27      PORT(
28          A : IN  std_logic;
29          B : IN  std_logic;
30          C : IN  std_logic;
31          D : IN  std_logic;
32          S : IN  std_logic_vector(1 downto 0);
33          Y : OUT std_logic
34      );
35      END COMPONENT;
36
37
38      --Inputs
39      signal A : std_logic := '0';
40      signal B : std_logic := '0';
41      signal C : std_logic := '0';
42      signal D : std_logic := '0';
43      signal S : std_logic_vector(1 downto 0) := (others => '0');
44
45      --Outputs
46      signal Y : std_logic;
47      -- No clocks detected in port list. Replace <clock> below with
48      -- appropriate port name
49
50
51  BEGIN
52
53      -- Instantiate the Unit Under Test (UUT)
54      uut: muxFour PORT MAP (
55          A => A,
56          B => B,
57          C => C,
```

```
58         D => D,
59         S => S,
60         Y => Y
61     );
62
63     -- Clock process definition
64
65
66     -- Stimulus process
67     stim_proc: process
68     begin
69         -- hold reset state for 100 ns.
70
71         A <= '0'; B <= '0'; C <= '0'; D <= '0' ; S <= "00";
72         wait for 10 ns;
73         ASSERT Y = '1' REPORT "Test 0000 00 Failed" SEVERITY NOTE; -- Can use Error,
Warning, Note
74
75         A <= '1'; B <= '0'; C <= '0'; D <= '0' ; S <= "00";
76         wait for 10 ns;
77         ASSERT Y = '0' REPORT "Test 1000 00 Failed" SEVERITY ERROR;
78
79         wait for 100 ns;
80
81         -- insert stimulus here
82
83         wait;
84     end process;
85
86 END;
```