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| **Test** | **Conditions** | **Procedures** | **Expected Results** | **Actual Results** |
| Verify Quartus | Personal Computer/Laptop with Quartus 13.0 installed | Tutorial Steps 1-6 | Compiled design successful | “Info (293000): Quartus II Full Compilation was successful. 0 errors, 11 warnings” |
| Verify ModelSim | Personal Computer/Laptop with ModelSim 10.0 installed | Tutorial Steps 7-10 | Reproduced waveform on page 9 | See Wave file |
| *Note: For your own test plans in the future, you may want to list different simulated commands as separate tests to allow for a more precise and robust test plan* | | | | |
| Verify Reset | DE2-115 Board powered and connected via USB cable to Quartus 13.0 Programmer; JTAG programming successful | Flip reset switch (SW17) to on (0/down) and back to off (1). Check each register by using switches 13 and 12 (13:12). | R0: x00  R1: x00  R2: x00  R3: x00 | R0: x00  R1: x00  R2: x00  R3: x00 |
| Verify Register 0 Stores all 1’s | DE2-115 Board powered and connected via USB cable to Quartus 13.0 Programmer; JTAG programming successful | With reset switch off, flip switches 7 down to 0 (7:0) to high (1). Toggle write enable (SW16). Ensure (13:12) are both at 0 to read reg0. Flip switches 7:0 back to 0. | R0: xFF | FF |
| Store a value to Register 2 | DE2-115 Board powered and connected via USB cable to Quartus 13.0 Programmer; JTAG programming successful | Change write select (15:14) to “10” for Reg2. Flip switches 7:4 to high and ensure 3:0 are low. Toggle SW16 on and off. Flip switches 7:4 back to low. Change read select (13:12) to “10” to read Reg2. | R2: xF0 | F0 |

THOUGHT QUESTIONS:

1. What additional tests could you do to provide better verification?

In addition to storing the specified values in R0 and R2 I could test R1 and R3 by storing and reading from them as well. I could alter the bits one by one to make sure all of their connections work as intended.

1. What did your tests show about how your design worked?
   1. If your design was not successful overall, did your testing help pinpoint your design’s errors? --
   2. If your design was successful overall, did your design work as expected for all conditions and methods?

Yes my design verified my understanding of how the circuit worked. Each isolated variable change did as was expected.

1. Did your testing verify and validate your design? Yes