**How to Manually Run Simulation on ModelSim**

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To manually run simulation without using the Quartus® II NativeLink feature, perform the following steps. You can use these steps for the ModelSim®-Altera® and ModelSim SE/PE software.

**Step 1: Invoke Software and Change Directory**

1. Invoke the Modelsim-Altera software.
2. Go to **File** menu, select the change directory name to **<project\_dir>/simulation/modelsim**.

**ModelSim-Altera Software**

**Step 2: Create a New Library**

1. Go to **File** menu, select **New**, and click the library.
2. Type work in the **Library Name** column, then click **OK**.

**Step 3. Compile the Library and Design File**

1. Go to **Compile,** and then select **Compile**.
2. Select work library then look in the **<project directory>** for the design file.  
   Below is the library and design file needed to compile for this example.
3. Click **Done**.

**Note:** For Modelsim-Altera software, there is a pre-compiled simulation library.

**ModelSim SE/PE Software**

**Step 2: Create a New Library**

1. Go to **File** menu, select **New**, and click the library.
2. Type lpm\_ver in the **Library Name** column, then click **OK**.

**Note:** Repeat **Step 2: Create a New Library** for more libraries. This step will create the library folder and map the library.

**Step 3: Compile the Library and Design File**

1. Go to **Compile**, and then select **Compile**.
2. Select the specific library folder that you created in **Step 2: Create a New Library** and look in the **<Quartus II installation folder>** for the **sim\_lib** to compile  
   (e.g., **c:\altera\90sp2\quartus\eda\sim\_lib**).
3. After you select the folder and library, click **Compile**.
4. Click **Done**.

For more information on using the Mentor Graphics ModelSim simulator tool, refer to Mentor Graphics ModelSim software documentation and the [*Mentor Graphics ModelSim and QuestaSim Support* (PDF)](http://www.altera.com/literature/hb/qts/qts_qii53001.pdf) chapter in volume 3 of the [*Quartus II Development Software Handbook*](http://www.altera.com/literature/lit-qts.jsp).

Table 1 provides information allowing you to choose which library is needed to compile for VHDL and Verilog.

|  |  |
| --- | --- |
| ***Table 1. VHDL and Verilog Libraries*** | |
| **VHDL** | **Verilog** |
| Folder name:  Lpm  File to compile: **<220model.vhd, 220pack.vhd>** | Folder name: lpm\_ver  File to compile: **220model.v** |
| Folder name:  Sgate  File to compile: **<sgate.vhd, sgate\_pack.vhd>** | Folder name: sgate\_ver  File to compile: **sgate.v** |
| Folder name: stratixiigx\_hssi  File to compile: **<stratixiigx\_hssi\_atoms.vhd,stratixiigx\_hssi\_component.vhd>** | Folder name: stratixiigx\_hssi\_ver  File to compile: **stratixiigx\_hssi\_atoms.v** |
| Folder name: stratixiigx  File to compile: **<stratixiigx\_atoms.vhd, stratixiigx\_components.vhd>** | Folder name: stratixiigx\_ver  File: **stratixiigx\_atoms.v** |
| Folder name: work  File to compile: design files that have the extension **.vo** and **.vht** | Folder name: work  File to compile: design files that have the extension **.vo** and **.vt** |

**Step 4: Start Simulation**

1. Go to **Simulate**, click **Start Simulation**.
2. At the **Design** tab, search for work, then expand the work and select your testbench file.
3. At the **Libraries** tab, click **Add**.
4. Select library lpm, then click **OK**.
5. Repeat step 3 for more libraries.
6. Click **OK**.

**Note:** For this design, you need to include the following libraries, sgate, lpm, stratixiigx\_hssi, stratixiigx, work, and gate\_work.

**Step 5: Add Wave and Run Simulation**

1. Go to the **View** menu, select **Wave**.
2. Select the entire signal at the object panel or drag the signal that you wish to look at to the wave panel.
3. At the Transcript window, type runs 1000ns.