

Chapter 4

Connecting the Testbench and Design

There are several steps needed to verify a design: generate stimulus, capture responses, determine correctness, and measure progress. However, first you need the proper testbench, connected to the design, as shown in Figure 4-1.

Your testbench wraps around the design, sending in stimulus and capturing the design's response. The testbench forms the "real world" around the design, mimicking the entire environment. For example, a processor model needs to connect to various buses and devices, which are modeled in the testbench as bus functional models. A networking device connects to multiple input and output data streams that are modeled based on standard protocols. A video chip connects to buses that send in commands, and then forms images that are written into memory models. The key concept is that the testbench simulates everything not in the design under test.

Figure 4-1 The testbench – design environment

