Lab 6: Scoreboard and protocol checks

Goal

Define the scoreboard module.
Define the protocol checks in the interface.

Overview

The scoreboard is the module that automatically checks the actual output of the DUT against the expected output, given a particular input. The way this is achieved is by implementing the functionality and protocols of the DUT (described in its specification) inside the scoreboard, passing it the same stimulus as the DUT, and checking the output. More specifically, the data sent on the input interface by the BFM is passed by the input monitor to the scoreboard, which computes an expected data (based on the DUT functionality programmed into it), and when the data appears on the output interface it is captured by the output monitor and sent to the scoreboard, which checks it against the expected data it created previously. If the actual and expected data don't match the scoreboard issues an error and the test run is considered failed. If no errors are reported during the whole simulation, the test run is considered passed.
The protocol checks are defined to make sure that the interface protocol described in the DUT's specification is maintained in all scenarios. For example, one protocol check would be that the number of data cycles on the output interface is equal to the *length* field in the header, or that the *err* signal is asserted when a packet with bad parity is received.

Files

svbt_environment.sv
svbt_scoreboard.sv
svbt_interface.sv

Instructions

- Complete the definition of the **scoreboard** in the file **svbt_scoreboard.sv**
- Complete the definition of the remaining protocol checks in the interface file
- Compile and run