

## CSCE 616 Lab 8

Prof: Dr. Michael Quinn

TA: Trisha Ghosh

Ahmet Coskuner [126009366]

Santhosh Srinivasan [633002273]

This lab was very straightforward. We built on the existing UVM structure to implement the RX Monitor and Scoreboard. The main difference between TX and RX monitors was that we waited for the `vc_gnt` signal for the TX but we waited for a `tx_sot` for the RX, which also means we had no business with `dest_port`. The loop used to attach new data packets to the dynamic array associated with the RX monitor packet was almost identical to the one for TX.

For the scoreboard, we push to one of the four queues depending on the `dest_port` of the `tx_mon_pkt`. We push to the front because for the RX side we pop from the back in order to compare with the reference model. The comparison happens in the `write_rx_export` functions which prints whether the data from the DUT matches the reference model. At the end of the simulation, we expected the sizes of all four queues to be zero to indicate that all data packets have been compared. But that is not enough to show that the entire simulation is correct, there also needs to be no UVM fatal errors, and a quick 'find' also shows that it never prints "Data mismatch..."

Figure 1. Scoreboard check with all queues empty

```
hera.ece.tamu.edu (Jacoskuner500)
Terminal Sessions View X server Tools Games Settings Macros Help
Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help

Quick connect...
/home/grads/a/jacoskuner500
Name
artistic_states
cache
cadence
co.config
co_hostport
dbus
amcass.d
amc
java
local
mndv
mozilla
pkc
admission
ax
vmanager
acoskuner500
cadence
cadence_jabs
casim
csce616
Desktop
Documents
Downloads
Music
Pictures
project
Public
Templates
Videos
CDS.log
bash_history
.viminfo
.vcsauthority
.gitlast
.vcsauthority
panic.log.zach-127-12.engr.t
libMinaer.log

Remote monitoring
Follow terminal folder

[4]      integral      64      'hd9266702191ed409
...
[25]     integral      64      'hd81c1f5ead0910ef
[26]     integral      64      'hc847ae4d432f9431
[27]     integral      64      'hbc25ebc87f7c686
[28]     integral      64      'hff043e47d26659b
[29]     integral      64      'hd808b723b2ec1fee

UVM_INFO ../tb/htax_scoreboard_c.sv(108) @ 12550000: uvm_test_top.tb.htax_sb [SCOREBOARD] Data matches for received pkt on port 1
UVM_INFO ../tb/htax_scoreboard_c.sv(111) @ 12550000: uvm_test_top.tb.htax_sb [SCOREBOARD] Dropping pkt from queue 1

Name      Type      Size      Value
-----
htax_tx_mon_packet_c  htax_tx_mon_packet_c  -      @5638
dest_port  integral      32      'h1
data       da1 integral)      4      -
[0]        integral      64      'hec5ad14a77aa6b3e
[1]        integral      64      'h1798df7add7dde8a
[2]        integral      64      'hc8194eda2ba15a07
[3]        integral      64      'h6bc701187cb9b52d

UVM_INFO ../tb/htax_tx_driver_c.sv(115) @ 13030000: uvm_test_top.tb.tx_driver [htax_tx_driver_c] Ended Driving Data Packet to DUT
UVM_INFO ../tb/htax_seqs.sv(25) @ 13030000: uvm_test_top.tb.tx_port[1].sequencer@simple_random_seq [simple_random_seq] drop_objection
UVM_INFO ../tb/htax_scoreboard_c.sv(103) @ 13050000: uvm_test_top.tb.htax_sb [SCOREBOARD] Received Data Packet on Port1:

Name      Type      Size      Value
-----
htax_rx_mon_packet_c  htax_rx_mon_packet_c  -      @3722
data       da1 integral)      4      -
[0]        integral      64      'hec5ad14a77aa6b3e
[1]        integral      64      'h1798df7add7dde8a
[2]        integral      64      'hc8194eda2ba15a07
[3]        integral      64      'h6bc701187cb9b52d

UVM_INFO ../tb/htax_scoreboard_c.sv(108) @ 13050000: uvm_test_top.tb.htax_sb [SCOREBOARD] Data matches for received pkt on port 1
UVM_INFO ../tb/htax_scoreboard_c.sv(111) @ 13050000: uvm_test_top.tb.htax_sb [SCOREBOARD] Dropping pkt from queue 1
UVM_INFO /opt/coe/cadence/XCELIUM/tools/methodology/UVM/CDNS-1.1d/sv/src/Base/uvm_objection.svh(1268) @ 63030000: reporter [TEST_DONE] 'run' phase is ready to p
ceeded to the 'extract' phase
UVM_INFO ../tb/htax_scoreboard_c.sv(147) @ 63030000: uvm_test_top.tb.htax_sb [SCOREBOARD] End of Simulation Checking
UVM_INFO ../tb/htax_scoreboard_c.sv(149) @ 63030000: uvm_test_top.tb.htax_sb [SCOREBOARD] Port 0 Queue is empty
UVM_INFO ../tb/htax_scoreboard_c.sv(153) @ 63030000: uvm_test_top.tb.htax_sb [SCOREBOARD] Port 1 Queue is empty
UVM_INFO ../tb/htax_scoreboard_c.sv(157) @ 63030000: uvm_test_top.tb.htax_sb [SCOREBOARD] Port 2 Queue is empty
UVM_INFO ../tb/htax_scoreboard_c.sv(161) @ 63030000: uvm_test_top.tb.htax_sb [SCOREBOARD] Port 3 Queue is empty

--- UVM Report catcher Summary ---
Number of demoted UVM_FATAL reports : 0

UNREGISTERED VERSION - Please support MobaXterm by subscribing to the professional edition here: https://mobaxterm.mobatek.net
```