CSCE 616: Introduction to Hardware Design Verification

Lab-10: HTAX Regression

Bug Report

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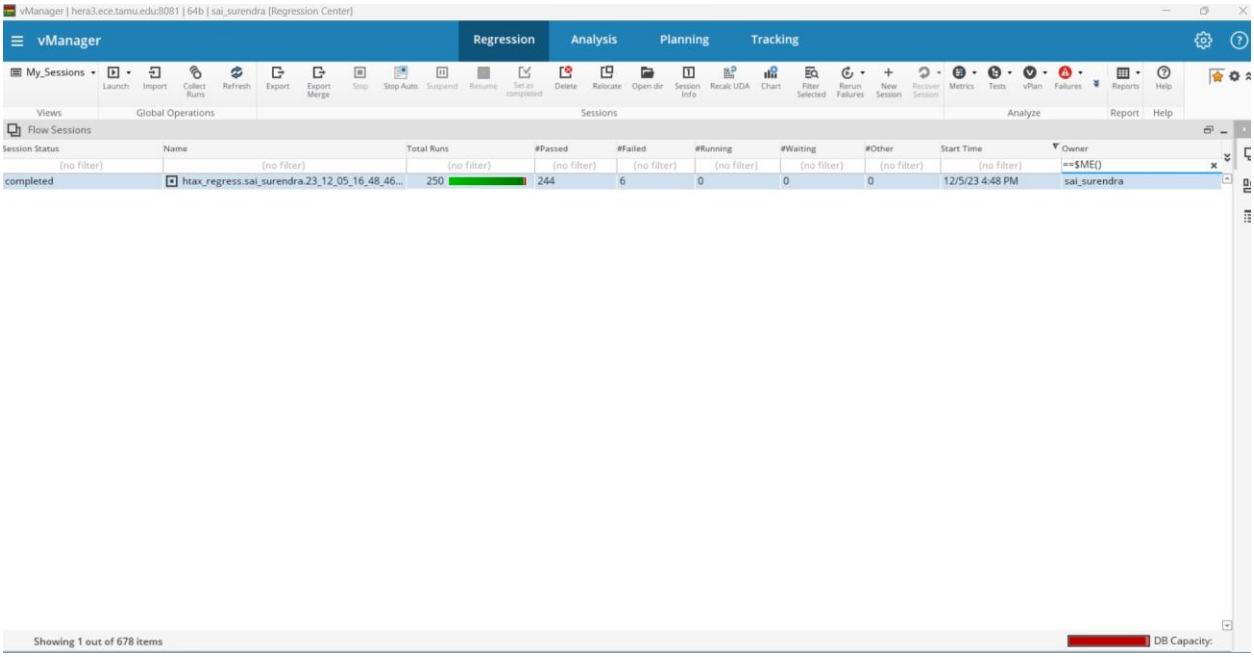
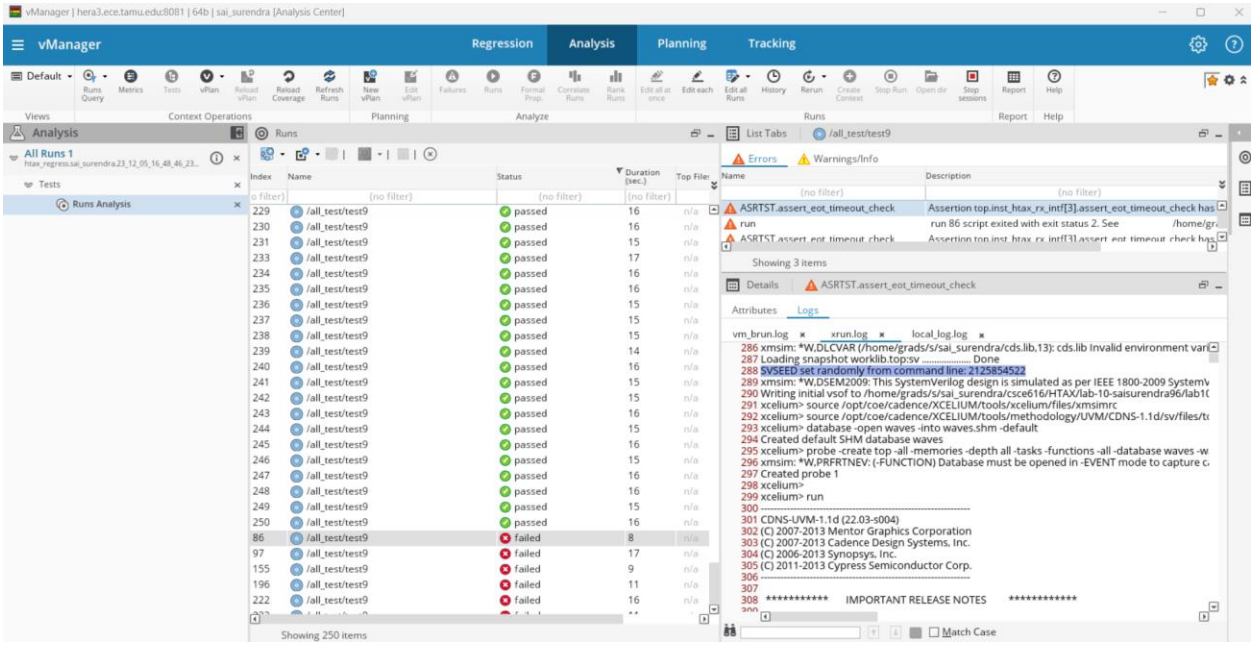
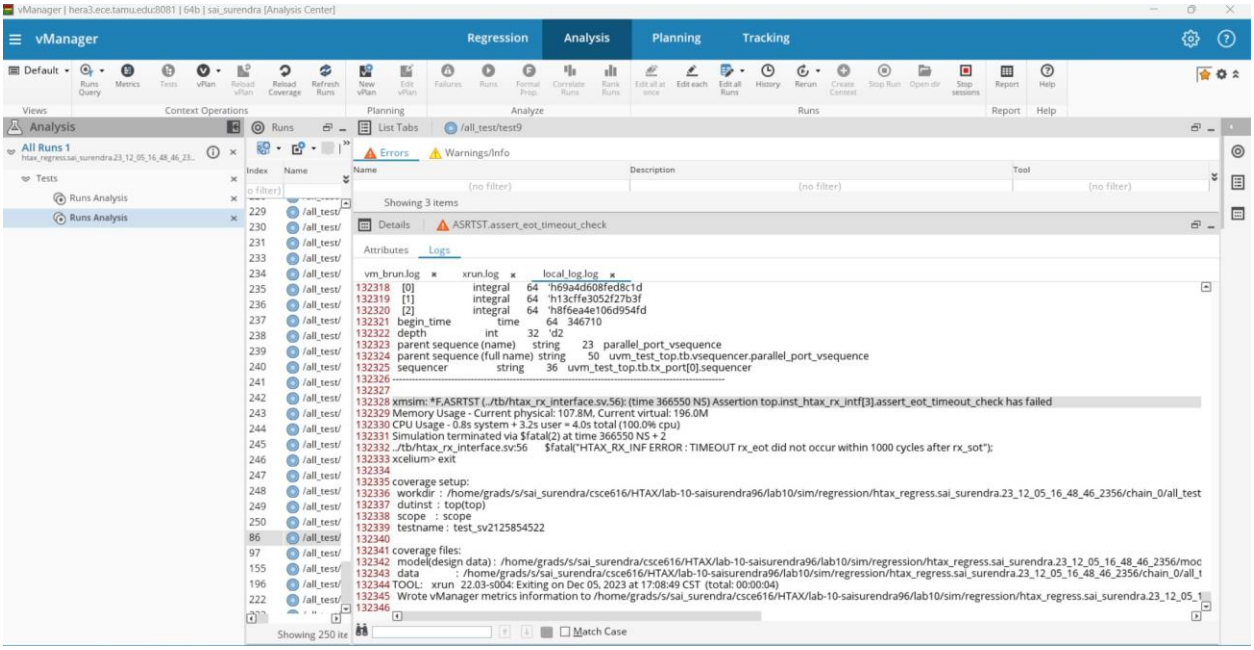
The vmanager regression result is shown below:



The svseed number for the failed test case is taken from xlog file





After taking the seed number enter the command

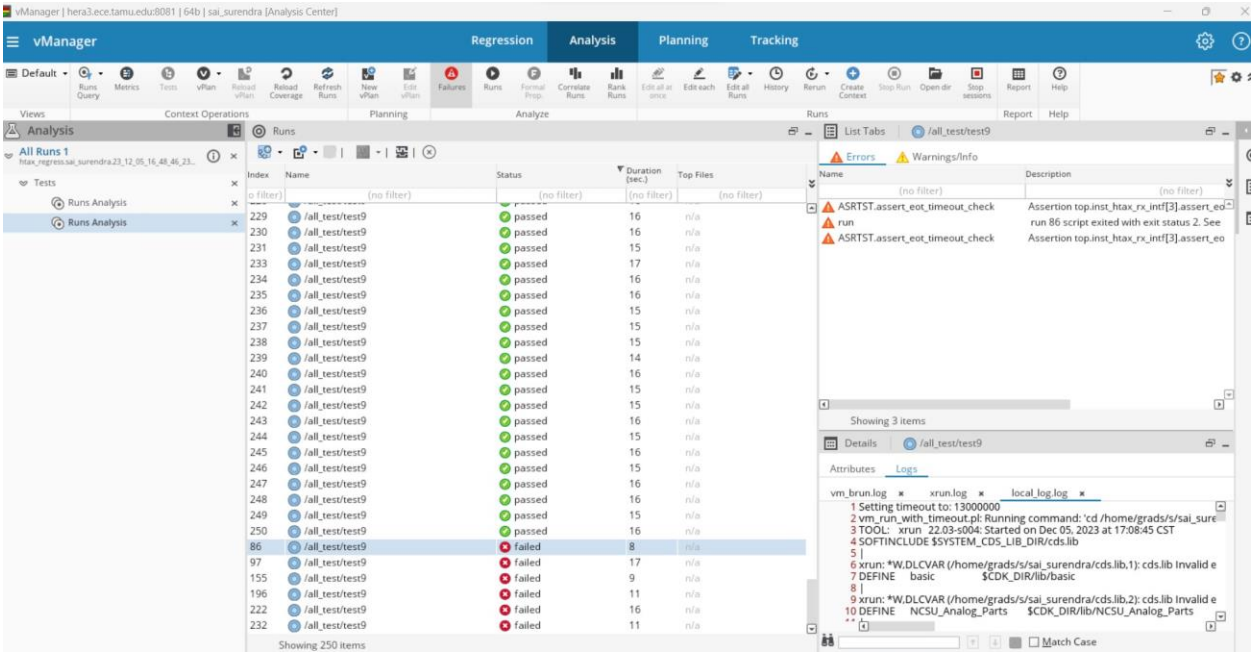
irun -f run.f +UVMTESTNAME=parallel_port +svseed [seednumber]

then we can see the logs more clearly for that particular testcase.

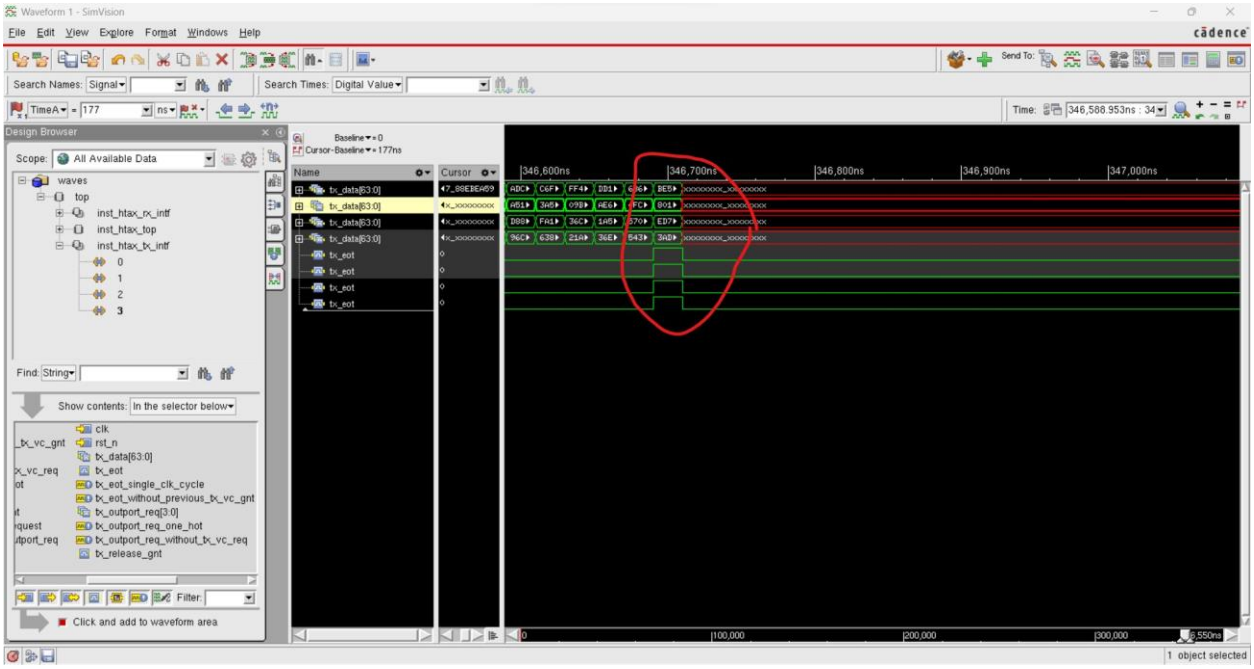
The error is shown below:

```
----------------------------------------------------------------------------------------------------

xmsim: *F,ASRTST (../tb/htax_rx_interface.sv,56): (time 366550 NS) Assertion top.inst_htax_rx_intf[3].assert_eot_timeout_check has failed
Memory Usage - Current physical: 105.9M, Current virtual: 192.1M
CPU Usage - 1.6s system + 3.5s user = 5.1s total (99.7% cpu)
Simulation terminated via $fatal(2) at time 366550 NS + 2
../tb/htax_rx_interface.sv:56       $fatal("HTAX_RX_INF ERROR : TIMEOUT rx_eot did not occur within 1000 cycles after rx_sot");
xcelium> exit

coverage setup:
  workdir  :  ./cov_work
```

After the regression test and after running the failure testcase, I can see that there is an error in the tx_eot signal.



After opening the waveform, I found the issue.



In the above waveform, I can see that when tx_eot is one at the same time for different ports, the data packet is getting corrupted.

For the fix, I have checked the design where the tx_eot signal is evaluated. In design/ htax_outport_data_mux.sv file, selected_eot is assigned to eot when if condition is true.

```
        sot_out <=  {VC{1'b0}};
    if (|inport_sel_reg && (!eot_out || (|selected_sot && (|inport_sel && !any_gnt) )))
        eot_out <= selected_eot;
```

Backtraced the code and find the issue in the line

assign selected_eot = |(eot_in & inport_sel_reg) & ~(&(eot_in));

I removed the & ~(&(eot_in)) part in the above line.

The fixed code line for the bug fix is

assign selected_eot = |(eot_in & inport_sel_reg);

After bug fix, the waveform is