# CHECKPOINT SIMULATION ON SOC

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## INTRODUCTION

• Checkpoint simulation - method of saving the state of a simulation at different points to rerun the simulation from those points.

· Used to save the simulation state after the circuit has been initialized so that future simulations can begin at that point rather than time 0.

## OBJECTIVE

· Reduction of simulation time.

· Achieve checkpoint simulation for j6eco.

## DESCRIPTION

· When a simulation state is saved, the simulator creates a new snapshot. To restart the simulation at later time, the saved snapshot has to be reloaded.

· The current simulation state that is saved in the snapshot includes the simulation time and all object values, scheduled events, annotated delays, the contents of the memory allocated for access type values, and file pointers.

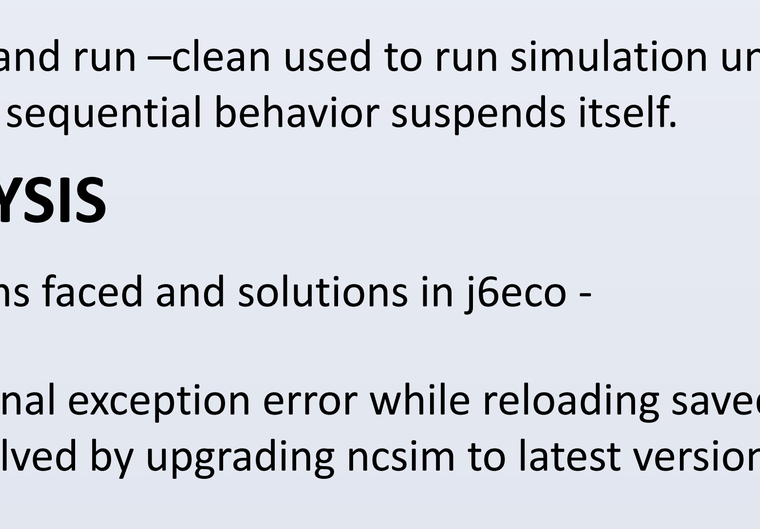
· Command run –clean used to run simulation until currently running sequential behavior suspends itself.

## ANALYSIS

• Problems faced and solutions in j6eco -

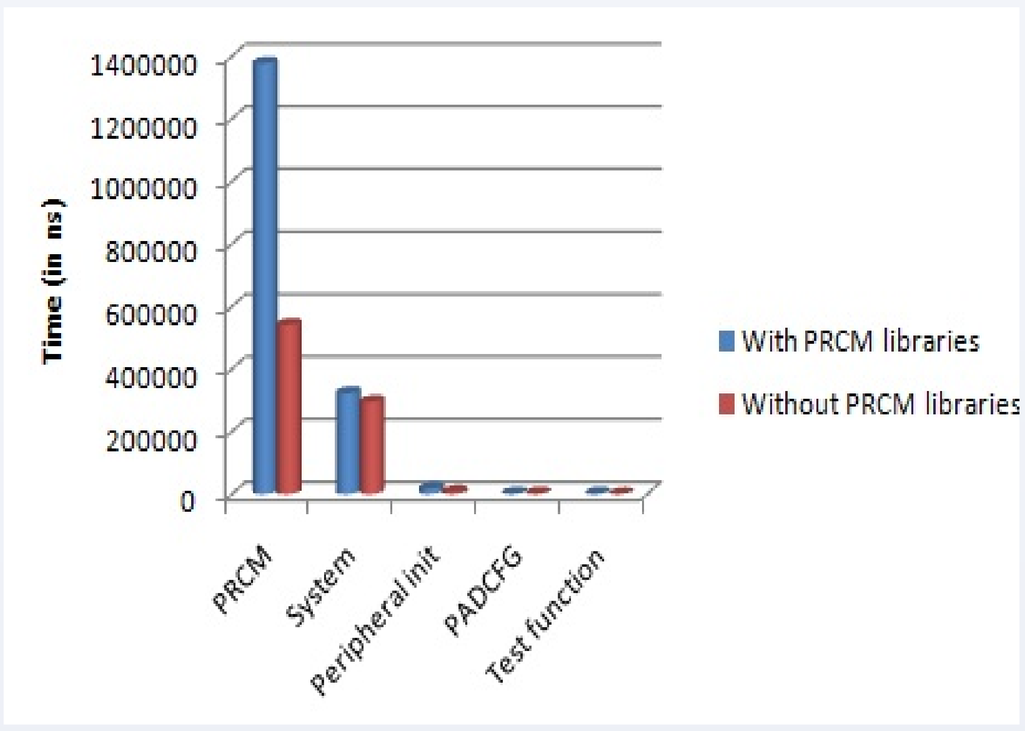
- Internal exception error while reloading saved snapshot. Resolved by upgrading ncsim to latest version 12.20.
- Ncsim error in reloading saved snaphot due to tarmac files. Simulation ran by removing it.
- Test case failed due to few signal errors occurred while loading saved snapshot. Working on debugging the code.

Simulation time distribution of C functions in j6eco

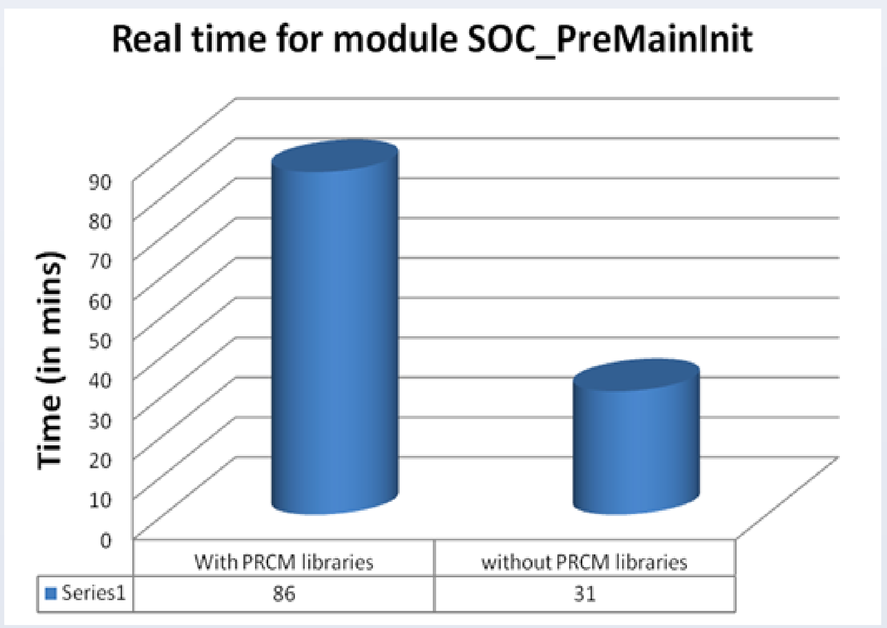



## RESULTS

• Modified PCRM code to direct read and write registers rather than using PRCM libraries.




· Simulation time reduced from 2 hours 7 minutes to 1 hour 3 minutes.




• Successfully completed checkpoint simulation for a verilog counter code.

· Saved snapshot for j6eco simulation after 1ms.

## FUTURE WORK

· Load the saved snapshot by overcoming all the tool issues.

· Software breakup.

## ACKNOWLEDGEMENT

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