EECS 222A: System-on-Chip Description and Modeling Lecture 8

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Lecture 8: Overview

- Homework Assignment 5
  - Discussion
    - Creating behaviors from C code
    - Eliminating pointers
- Homework Assignment 6
  - Automated Source Re-Coding
- Modeling with SystemC SLDL
  - SystemC Overview
  - Introduction to SystemC
    - Presentation by Stuart Swan, Cadence
  - SystemC 2.0 Tutorial
    - Presentation by Thorsten Groetker, Synopsys

Homework Assignment 5

- Tasks
  - Creating behaviors in C code
    - converting statement sequences into behaviors
  - Pointer elimination
    - replace pointers by their actual references
  - See posted detailed instructions!

Homework Assignment 5

- Deliverables
  - 1-paragraph description about the two tasks
    - How far did you get?
    - What were the problems?
    - How did you solve it?
  - Report the time stamps
    - How long did it take to do the tasks?
- Due
  - Week 8 (this week)

Homework Assignment 6

- Tasks
  - Creating behaviors in C code
    - converting function calls into behaviors
    - converting statement sequences into behaviors
  - Pointer elimination
    - replace pointers by their actual references
- Tools
  - Automated Source Re-Coder
    - Cute editor!
  - See posted detailed instructions!

Homework Assignment 6

- Deliverables
  - 1-paragraph description about the tasks
    - How far did you get?
    - What were the problems?
    - How did you solve it?
  - Report the time stamps
    - How long did it take to do the tasks?
- Due
  - Week 9 (next week)

SystemC Overview

- Goals
  - Common C++ Modeling Platform
    - System Level Design
    - HW/SW Codesign
    - RTL
  - Seamless Co-Simulation of HW and SW
  - IP Reuse
  - Free licensing, Open Source
  - De-facto Standard
- Open SystemC Initiative (OSCI)
  - Consortium of many EDA companies
    - Synopsys, Cadence, CoWare, Frontier, ...
  - Open Community (very large!)

SystemC Overview

- Language
  - C++ class library (layered SW architecture)
  - Hierarchy of Modules connected by Ports
  - Communication via Interfaces and Channels
  - Discrete-Event Simulation
- Methodology
  - Untimed Model
  - Transaction-level Model
  - Bus-functional Model
  - Cycle-accurate Model

Introduction to SystemC

- Presentation by Stuart Swan, Cadence, 2002
  - Goals and Requirements
  - History and Organization
  - Versions, Contents, Coverage
  - Language Architecture
  - Modeling, Models of Computation, Examples
  - Communication Refinement
  - Outlook

SystemC 2.0 Tutorial

- Presentation by Thorsten Groetker, Synopsys, 2001
  - Motivation
  - Models of Computation
  - Model of Time
  - Communication, Interfaces and Channels
  - Platform Modeling
  - Transaction-level Model, Examples
  - Benefits
  - Summary