EECS 222A: System-on-Chip Description and Modeling Lecture 10

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Lecture 10: Overview

- Course Administration
  - Final course evaluation
- Homework Assignment 7
  - Develop a SpecC Model of your choice
  - Final Report on System Modeling
- Project discussion
  - Q & A

Course Administration

- Final Course Evaluation
  - Open until end of 10th week
  - Nov. 26, 2007, 12pm - Dec. 9, 2007, 11:45pm
  - Online via EEE Evaluation application
- Mandatory Evaluation of Course and Instructor
  - Voluntary
  - Anonymous
  - Very valuable
- Help to improve this class!
- Please spend 5 minutes!

Homework Assignment 7

- Tasks
  - Develop a System Specification Model in SpecC
    - Option 1: extended Elevator Control System (ECS)
    - Option 2: an embedded system of your choice
  - Simulate and document your model
- Model Structure
  - Test bench behavior Main
    - Stimulus behavior
    - Design Under Test (DUT)
      - multiple levels of hierarchy
      - sequential, FSM, parallel, or pipelined composition
    - Monitor behavior

Homework Assignment 7

- Deliverables
  - Source code (in SpecC) of the model
  - Successful simulation run (log file)
  - Final Report on System Modeling
    - Documentation of your system
      - Description of functionality
      - Schematic view of DUT in the test bench
      - max. 10 pages (plus appendix, if applicable)
- Due
  - December 14, 2007, 4pm (Final Week)
  - Email or hardcopy

Option 1: Elevator Control System

- Example Project
  - Elevator Control System (ECS)
    - Distributed embedded system
    - Set of communicating Elevator Control Units (ECU)
- Project Documentation
  - D. Castellanos, R. Dömer:
    "System-Level Modeling and Simulation of an Elevator Control System",
    CECS Technical Report 07-04, June 2007.
  - http://www.cecs.uci.edu/~doemer/publications/CECS_TR_07_04.pdf
- Tasks
  - Extend and document the given system (see Assignment 3)
  - Specify an intelligent Main Control Unit
  - Simulate a scenario with elevator cars servicing multiple requests

Option 1: Elevator Control System

- Decomposition of ECS into multiple ECUs
  - Floor panel
    - panel at each floor and each shaft with up/down controls
  - Floor display
    - display of current floor and direction at each floor
  - Floor door
    - Control unit to open/close doors at each floor
  - Car panel
    - panel in each car with request controls
  - Car display
    - display of current floor and direction in each car
  - Car door
    - Control unit to open/close doors in each car
  - Main control unit
    - central control unit to control the entire ECS
  - Motor control unit
    - control unit for the motor atop each shaft