ECPS 203
Embedded Systems Modeling and Design
Lecture 14

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Lecture 14: Overview

- Communication Modeling with SystemC
  - Traditional Bus Functional Model (BFM)
    - Cycle-accurate, pin-accurate communication
    - ➢ Ports, signal assignments
    - ➢ Slow (1x)
  - Regular Transaction Level Modeling: TLM 1.0
    - Modules, channels, interfaces
    - ➢ Method calls
    - ➢ Fast (100x)
  - New Transaction Level Modeling: TLM-2.0
    - Initiators, targets, sockets
    - ➢ Method calls with Direct Memory Interface (DMI)
    - ➢ Very fast (1000x)

IEEE SystemC Language

- Transaction Level Modeling with SystemC:
  TLM 1.0 and TLM-2.0
  - **DAC15_SystemC-TLM20_Training.pdf**,
    slides 1 through 50
    by David Black, Doulos
    - SystemC training day at Design Automation Conference 2015
  - *"The Definitive Guide to SystemC:*
    TLM-2.0 and the IEEE 1666-2011 Standard"
    - What is IEEE-1666-2011
    - Transaction Level Modeling
    - The architecture of TLM-2.0
    - Initiator, interconnect, target & sockets
    - The generic payload
    - Loosely-timed coding style
    - Extensions and interoperability

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