PeaCE (Ptolemy extension as Codesign Environment)

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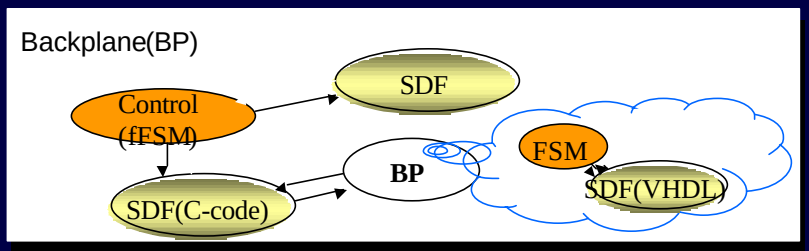
PeaCE

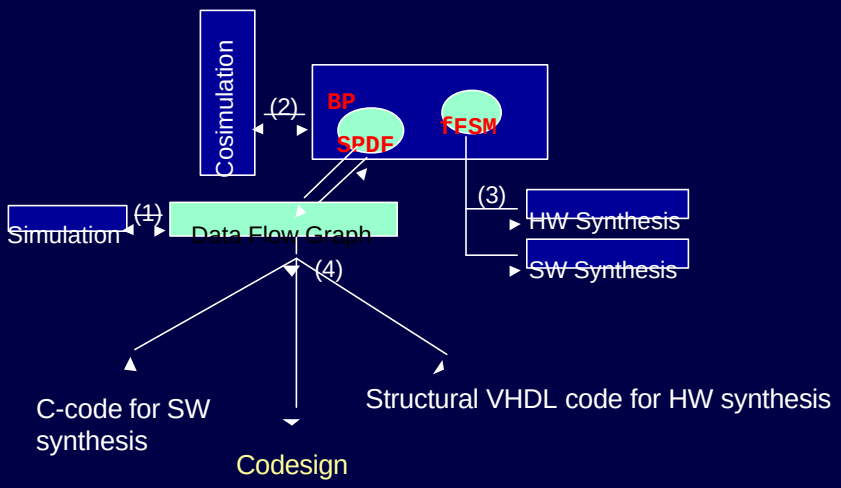
- Research prototype as a codesign environment based on Ptolemy Classic
- Focuses on synthesis
  - Use domains with clear refinement process – SDF and FSM
  - Enlarge the modeling capability by simple extension
    - SPDF: Synchronous Piggybacked Dataflow
    - fFSM: flexible FSM – hierarchical and concurrent FSM
  - Open global optimization possibility
    - Codesign backplane (BP domain): derived from DE domain
- Goal
  - Obtain the optimal architecture with given system requirements and constraints
  - "Efficient implementation" with a given architecture.

Codesign Backplane

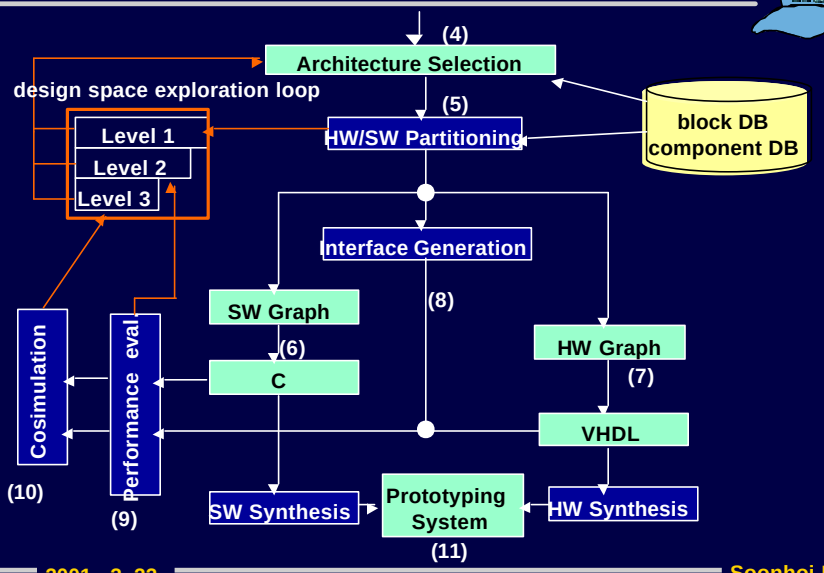
- Central backbone for domain interactions
- Maintain global information of component models during the codesign process
- It supports
  - cospecification of control and function modules
  - cosimulation with HW/SW simulators
  - will support cosynthesis



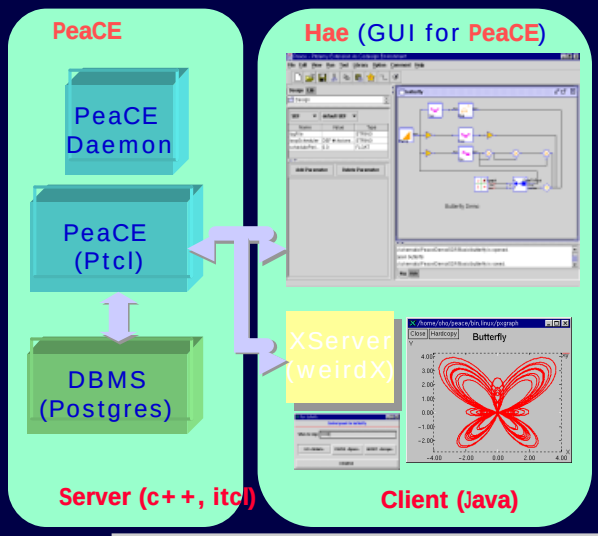
Codesign Workflow (1)



Codesign Workflow (2)



Software Structure



Come and See !

- Demonstration
  - Codesign flow with simple examples
  - Other research results
- Lesson: more time spent, more work remained*!*
- We appreciate Ptolemy team's excellent work*!!!*