DATE, 24-28 March 2014 - Dresden, Germany

TTool/DiplodocusDF: a UML Environment for Hardware/Software Co-Design of Data-Dominated Systems

Andrea ENRICI, Ludovic APVRILLE, Renaud PACALET
Institut Mines-Telecom, Telecom ParisTech, CNRS/LTCI - Sophia Antipolis, France

Contact: firstname.lastname@telecom-paristech.fr - http://ttool.telecom-paristech.fr/

System Level Modeling: Application, Architecture, Mapping

Application (workload): Dataflow graph with data and functional abstractions. Algorithms are described using abstract cost operators that process the amount of data exchanged between nodes.

Mapping (workload + structure): The workload of an application (data, control) is associated to the architecture units (computations, communications).

Design Space Exploration: Simulation and Formal Verification at the push of a button

Automatic Generation of Executable Code from High Level Models

- Model-checking of system properties (e.g., safety, schedulability, performance)
- Interactive simulation with graphical interface and debug facilities (e.g., breakpoints, simulation traces)

An executable implementation of the application is automatically generated: only memory allocation and data-blocks addresses must be manually encoded.