



Model Based Design using the Simulink HDL Coder: From Simulink/MATLAB to Hardware in the push of a button

Presenters: Girish Venkataramani and Kiran Kintali

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Simulink Hardware Definition Language (HDL) Coder bridges the gap between system design and hardware implementation. It lets you generate synthesizable, correct-by-construction RTL code that can be used to rapidly design, verify, and develop prototypes of your algorithms. Simulink HDL Coder prescribes to the model-based design workflow, where the engineer specs, prototypes, architects, implements, tests and validates his design within the same Simulink model and environment. Empirical evidence from customer experiences shows that such a workflow substantially improves designer productivity by reducing both the design time pain and the verification pain.

In this talk, we will introduce model-based design as an important workflow methodology and demonstrate how the Simulink HDL Coder fits in to this workflow. Using Simulink HDL Coder, you can model your system with Simulink blocks, Stateflow, and Embedded MATLAB, and then generate HDL code for the datapath and control sections of your design. With the aid of industry models from the signal processing and image processing domains, we will show a live demonstration of a typical workflow: how the user starts from an abstract concept, which is then coded in to an algorithm specification within Simulink and finally implemented in RTL after several iterations over the model to satisfy various design constraints. In the process, we will demonstrate some of the usage and debug capabilities of the tool.

Biographies:

Girish Venkataramani is a compiler engineer at MathWorks, Inc. and actively participates in the Simulink HDL Coder product development. He completed his Ph.D. in Electrical and Computer Engineering from Carnegie Mellon University, where he worked on a C-to-HDL compiler for his dissertation. His interests are in hardware compiler design, architectures and developing compiler optimizations for improving overall hardware efficiency.

Kiran Kintali completed his Masters in Electrical and Electronics from the Regional Engg College, Surathkal, Inda in 1999. Since then he worked at Zilog and Conexant on embedded system software tools, compilers and debuggers. Currently at MathWorks, he is leading the development effort on the Simulink HDL Coder product and is focused on model based design methodologies for the EDA industry.

Host: Professor Sherief Reda