Firmware Validation: Challenges and Opportunities

Jim Grundy
Intel Corporation

ABSTRACT

Firmware validation is driven by imperatives and challenges distinct from those of application level software. In this tutorial we will survey the characteristics of firmware projects, focusing on those that make them particularly challenging and important to validate. Well look at the tasks accomplished using firmware, the environments in which it executes, and how firmware is shaped by the constraints imposed by the greater product development program in which it fits. Finally, well look at some of our experiences in firmware validation and the lessons weve learned from them. Specifically, well be looking for lessons that can help to guide the selection of problems to study and appropriate case studies on which to evaluate them.

SHORT BIOGRAPHY

Jim Grundy is a research scientist with the Strategic CAD Labs at Intel Corporation, where he leads the Logic Verification group in developing formal tools and methods for modeling and analysis of designs to be realized in both hardware and software. He has published in the fields of automated and interactive reasoning, software verification, and functional programming. Prior to joining Intel in 2000, Jim was faculty a member of the Department of Computer Science at The Australian National University. Jim has also worked as a post-doctoral researcher at bo Akademi in Finland, and as a research scientist at the Australian Defence Science and Technology Organisation. Jim holds a PhD from the University of Cambirdge, UK and BSc from the University of Queensland in Australia.

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