Embedded Systems Design: Optimization Challenges

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Embedded systems are everywhere: from alarm clocks to PDAs, from mobile phones to cars, almost all the devices we use are controlled by embedded systems. Over 99% of the microprocessors produced today are used in embedded systems, and recently the number of embedded systems in use has become larger than the number of humans on the planet.

The complexity of embedded systems is growing at a very high pace and the constraints in terms of functionality, performance, low energy consumption, reliability, cost and time-to-market are getting tighter. Therefore, the task of designing such systems is becoming increasingly important and difficult at the same time.

New automated design optimization techniques are needed, which are able to: successfully manage the complexity of embedded systems, meet the constraints imposed by the application domain, shorten the time-to-market, and reduce development and manufacturing costs.

In this talk, the presenter will introduce several embedded systems design problems, and will show how they can be formulated as optimization problems. Solving such challenging design optimization problems are the key to the success of the embedded systems design.

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