Power estimation on electronic system level using linear power models

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Abstrak

This book describes a flexible and largely automated methodology for adding the estimation of power consumption to high level simulations at the electronic system level (ESL). This method enables the inclusion of power consumption considerations from the very start of a design. This ability can help designers of electronic systems to create devices with low power consumption. The authors also demonstrate the implementation of the method, using the popular ESL language “SystemC”. This implementation enables most existing SystemC ESL simulations for power estimation with very little manual work. Extensive case-studies of a Network on Chip communication architecture and a dual-core application processor “ARM Cortex-A9” showcase the applicability and accuracy of the method to different types of electronic devices. The evaluation compares various trade-offs regarding amount of manual work, types of ESL models, achieved estimation accuracy and impact on the simulation speed.
- Describes a flexible and largely automated ESL power estimation method;
- Shows implementation of power estimation methodology in SystemC;
- Uses two extensive case studies to demonstrate method introduced.