Invited Talk: State-of-the-Art Compiler Optimization

Kenneth Zadeck
Research Staff Member
Software Environments Dept.
IBM Hawthorn Research Center
P.O.Box 704
Yorktown Hights, NY 10598
Email: zadeck@watson.ibm.com
Tel: (914) 784-6681

Abstract

The fields of compiler optimization and high level synthesis share many of the same challenges, and it is not uncommon for an advance in one area to trigger breakthroughs in the other. With this in mind, this tutorial covers several key areas in compiler optimization in which recent advances have been made. The topics to be covered include scalar renaming using Static Single Assignment form, register allocation using approximations to graph coloring, scheduling, and loop transformations to exploit parallelism.