Loop Transformations for Restructuring Compilers

By Utpal Banerjee

Springer Jan 1993, 1993. Buch. Book Condition: Neu. 235x155x23 mm. This item is printed on demand - Print on Demand Neuware - Automatic transformation of a sequential program into a parallel form is a subject that presents a great intellectual challenge and promises great practical rewards. There is a tremendous investment in existing sequential programs, and scientists and engineers continue to write their application programs in sequential languages (primarily in Fortran),but the demand for increasing speed is constant. The job of a restructuring compiler is to discover the dependence structure of a given program and transform the program in a way that is consistent with both that dependence structure and the characteristics of the given machine. Much attention in this field of research has been focused on the Fortran do loop. This is where one expects to find major chunks of computation that need to be performed repeatedly for different values of the index variable. Many loop transformations have been designed over the years, and several of them can be found in any parallelizing compiler currently in use in industry or at a university research facility. Loop Transformations for Restructuring Compilers: The Foundations provides a rigorous theory of loop transformations....

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