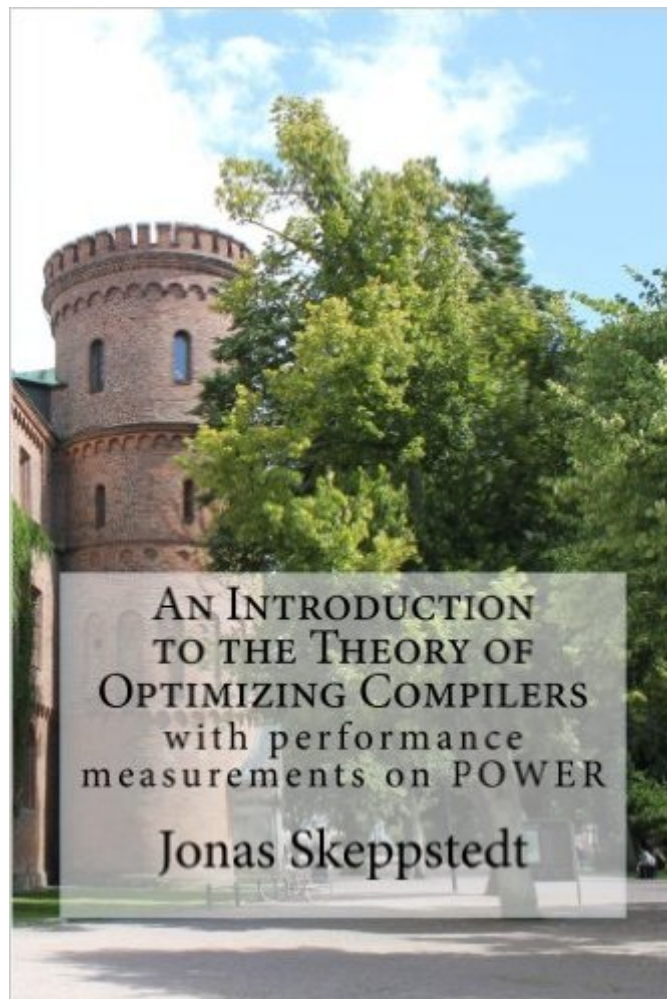


The book was found

# An Introduction To The Theory Of Optimizing Compilers: With Performance Measurements On POWER



## Synopsis

The goal of *An Introduction to the Theory of Optimizing Compilers* is to give the reader a solid understanding of modern optimizing compilers. The theory is focused on  $\phi$  control flow graphs, including algorithms for computing dominance, dominance frontiers, and control dependence,  $\phi$  static single assignment form (SSA form) including recent advances in translation from SSA form based on fast liveness checking and coalescing, and  $\phi$  loop transformations. We also cover instruction scheduling and register allocation. The optimization techniques we present include constant propagation with conditional branches, partial redundancy elimination, hash-based and global value numbering, operator strength reduction, dead code elimination, control flow graph simplification based on postdominators, translation from SSA form based on coalescing, unimodular loop transformations, modulo scheduling, and iterative register coalescing. The book is to a high degree self-contained and is intended to be suitable both for self-study and university courses. For completeness we provide a review of fundamentals, including sections on sets and relations, graphs, number theory, and some linear algebra. New in this extended first edition is performance measurements on POWER using SPEC CPU2000. We compare gcc, clang and the author's <sup>TM</sup> ISO validated C99 compiler. Prerequisites The reader is assumed to have studied algorithms and data structures, but no knowledge about compiler front-ends is necessary. About the author Dr. Jonas Skeppstedt has done research on optimizing compilers and multicore computer architecture in Lund, Chalmers, and USC in Los Angeles; his Impcc compiler was rewarded ISO C certification in 2003 for C99; has taught optimizing compilers at Lund University for many years and has developed safety-critical C code for the new European Rail Traffic Management System (ERTMS), and helped German lawyers as expert witness on the C programming language.

## Book Information

Paperback: 266 pages

Publisher: CreateSpace Independent Publishing Platform; 1 edition (August 14, 2016)

Language: English

ISBN-10: 1537091123

ISBN-13: 978-1537091129

Product Dimensions: 6 x 0.6 x 9 inches

Shipping Weight: 1 pounds (View shipping rates and policies)

Average Customer Review: Be the first to review this item

Best Sellers Rank: #1,733,567 in Books (See Top 100 in Books) #107 in *Books > Computers &*

Technology > Programming > Languages & Tools > Compiler Design #314 inÂ Books >  
Computers & Technology > Programming > Languages & Tools > Compilers

[Download to continue reading...](#)

An Introduction to the Theory of Optimizing Compilers: with performance measurements on  
POWER The Nineteenth Mental Measurements Yearbook (Buros Mental Measurements Yearbook)  
Implementing Programming Languages. an Introduction to Compilers and Interpreters (Texts in  
Computing) An Introduction to GCC: For the GNU Compilers GCC and G++ Beginning Power BI  
with Excel 2013: Self-Service Business Intelligence Using Power Pivot, Power View, Power Query,  
and Power Map Power Pivot and Power BI: The Excel User's Guide to DAX, Power Query, Power  
BI & Power Pivot in Excel 2010-2016 Optimizing NFS Performance: Tuning and Troubleshooting  
NFS on HP-UX Systems Optimizing Oracle Performance Provably Correct Systems: Modelling of  
Communication Languages and Design of Optimized Compilers (The McGraw-Hill International  
Series in Software) Optimizing the Power of Action Learning: Real-Time Strategies for Developing  
Leaders, Building Teams and Transforming Organizations SLAM Using Monocular Vision and  
Inertial Measurements: A New Low-cost Approach for Portable Simultaneous Localization and  
Mapping Forest Measurements, Fifth Edition Measurements and their Uncertainties: A practical  
guide to modern error analysis Risk Finance and Asset Pricing: Value, Measurements, and Markets  
PMP Understand Earned Value Measurements: Detailed Explanation, Examples, and 50+ solved  
problems Windows XP Registry: A Complete Guide to Customizing and Optimizing Windows XP  
(Information Technologies Master Series) Fuzzy C-Means Clustering for Clinical Knowledge  
Discovery in Databases: Optimizing FCM using Genetic Algorithm for use by Medical Experts in  
Diagnostic Systems and Data Integration with SchemaSQL The Microsoft Guide to Managing  
Memory With MS-DOS 6: Installing, Configuring, and Optimizing Memory for MS-DOS and Windows  
Operating Systems Design of an Optimizing Compiler (Programming Languages) Optimizing  
Powerpc Code: Programming the Powerpc Chip in Assembly Language

[Dmca](#)