

CPEG 621

- Spring 2012



Topics on Advanced Compiler Design

Admin. Information

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Important Dates



May 21 (Mon.) : project report due

Course work will carry the following weights towards your final grade:

Quiz: 40%

Participation (homework, class attendance): 30%

Project: 30%

References



1. A set of papers - to be assigned

2. Books:

A. Aho, M. S. Lam, R. Sethi and J. Ullman,
Compilers: Principles, Techniques and Tools
(The Dragon Book, second edition), Addison
Wesley, 2006

Other references: see course page

Other References

3. Journals

IEEE

Computer

Transactions on Computers

Concurrency

Transactions on Parallel and Distributed Systems

ACM

TOPLAS - Transactions on Programming Languages and Systems

Transaction on Computer Systems

JPDC

Journal of Parallel and Distributed computing

JSC

Journal of Supercomputing

JPP

International Journal of Parallel Programming

PC

Parallel Computing (North-Holland)

JPL

J. of Programming Languages

Other Reference

4. Conference Proceedings

PLDI	ACM Symposium on Programming Language Design and Implementation
POPL	ACM Symposium on Principles of Programming Languages
PPOPP	ACM Symposium on Principles and Practice of Parallel Programming
ICPP	International Conference on Parallel Processing
ICS	International Conference on Supercomputing
LCPC	Intern. WS. on Languages and Compilers for Parallel Computing
PACT	Parallel Architectures and Compilation Techniques (since 1994)
IPDPS	International Parallel and Distributed Processing Symposium
EUROPAR	European Parallel Processing Conferences
MICRO	ACM/IEEE Symposium on Microarchitectures
ISCA	ACM/IEEE International Symposium on Computer Architecture
ASPLOS	ACM Symposium on Architecture Support for Program Languages and Operating Systems

Major Topics

- Part 0: Overview of Compiler Design
- Part 1: Compiler Fundamentals
 - Compiler Front-End and IR
 - Middle-End: Analysis and Optimizations
- Part 2: Back-End: Code Generation and Optimization
 - Instruction Selection
 - Instruction Scheduling
 - Register Allocation
- Part 3: Loop Optimizations
 - Dependence Analysis
 - Unimodular Transformations
 - The Polyhedral Framework
- Part 4: Programming Models, Compilers & Runtimes, Tools