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:


Other references: see course page
Other References

3. Journals

IEEE
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

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