

Compiler Transformations for High-Performance Computing (1)

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What's this survey about?

- ▶ Comprehensive overview of *high-level* compiler transformations/optimizations
- ▶ Languages: imperative, e.g. C, Fortran
- ▶ Architectures
 - ▶ Sequential: common and general-purpose
 - ▶ Parallel: superscalar, vector, SIMD, shared-memory MP, distributed-memory MP, etc

What do compilers do?

- ▶ On a high level
 - ▶ Translation: source code \rightarrow machine code
 - ▶ Optimization: various transformations to reduce running time, code size, etc