

(annotated) AST or C code
of an assembly kernel

Optimization strategy selection

↓ ↓ ... ↓ {AST}

Expression Rewriter

- Generalized loop-invariant code motion (*licm*)
- *Re-association and factorization (to expose licm opportunities)*
- *Expansion (register pressure)*
- *Scalar-expansion (full vectorization)*
- *Avoid computation over zero-valued blocks*

↓ ↓ ... ↓ {AST}

Code Specializer

**Model-driven dynamic
autotuning**

- Padding and data alignment
 - Expression splitting
 - Vector-register tiling
- *Exposure of BLAS operations*

C code
assembly kernel

