

1. Loop analysis

1.1. Load LLVM IR for loop (or nested loops stack)

1.2. Substitute addresses of global variables from runtime

1.3. Substitute pointer and integer parameters

1.4. Run polly preopt passes

1.5. Check the loop is eligible for polyhedral analysis

1.6. Create loop ISL description

1.7. Use CLooG to find parallel loops in ISL representation



2. Codegen & optimize for GPU

2.1. Generate GPU-specific LLVM IR from the resulting CLooG AST

2.2. Compute the GPU grid and strides for parallel loops

2.3. Run standard LLVM IR optimizations

2.4. Codegen LLVM IR to PTX with NVPTX backend