

# Compiler (OpenUH)



**Fortran  
front-end**

Parse CAF  
syntax, emit  
high-level IR

**F90+Coarray  
Lowering**

Translate array  
sections accesses to  
loops and/or 1-sided  
communication

**Loop  
Nest  
Optimizer**

Cost-model driven  
loop optimization and  
message vectorization

**Back-end  
Global  
Optimizer**

SPMD data-flow  
analysis  
for latency-hiding  
optimization

## Runtime (libcaf)

**Team-based  
Coarray Memory  
Allocator and Heap  
Management**

**Collectives**  
  
1-sided  
communication  
(strided and non-  
strided)

**Barriers**  
  
Point-to-point  
Synchronization  
  
Distributed Locks  
  
Atomics

Communication Layer (GASNet or ARMCI). Supports Shared Memory, Ethernet, IB, Myrinet GM, IBM LAPI, Cray Gemini, ...