# GLT API Applications

Adrián Castelló 03/16/16

- Desired application patterns
  - Fine-grained parallelism
  - Nested parallelism
  - Task parallelism
- UTS
- ??

UTS using GLT

- Unbalanced Tree Search 2.1
  - pThreads and OpenMP
  - Workstealing
  - Main thread controls the main stack and worker threads move work from there to its own stack
- Compiled and executed with fast_glt library
- Translated from pthreads version
- Compiled with gcc 5.2 -O3
  - context switch overhead reduced
  - Memory accesses reordered
- Problem size: TL1

UTS using GLT
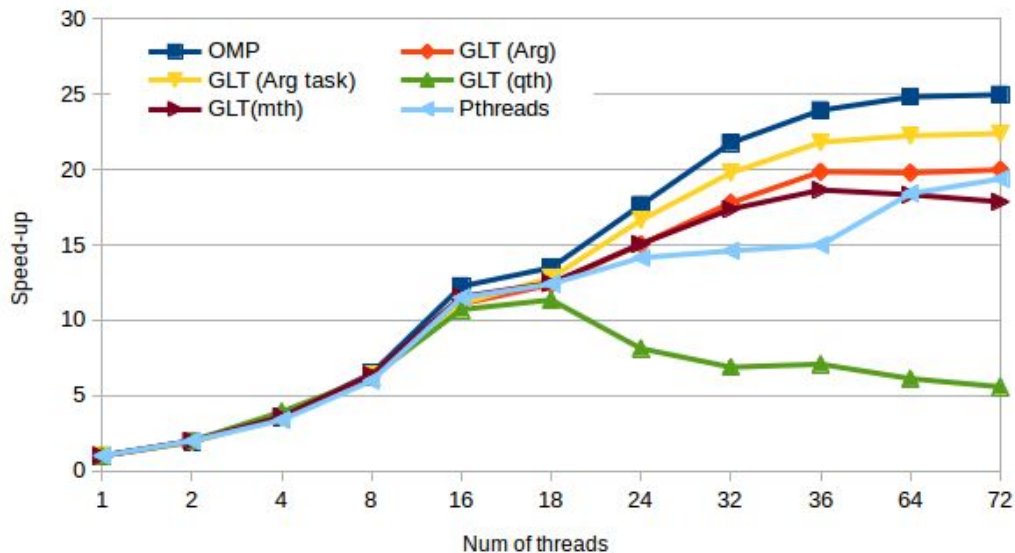
Sequential time: 21.8-22.1 s

Close speed-up when using up to 18 cores
(same processor that main thread)

OpenMP does not synchronize as pthreads

O3 optimization level minimizes the constant
context switch for pthreads

The extra hierarchical level in qthreads
(Shepherds + workers) adds internal
synchronization