

Priorities for version 1.12

Chapel Team, Cray Inc.

Chapel version 1.11

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Top Priorities for version 1.12

- 1. Memory Management Improvements**
 - automatic mgmt, constr/destr/noinit, begin semantics, array refcounts
- 2. Strings: record-based, leak-free, rich library support, UTF-8**
- 3. Multi-locale performance and scalability**
- 4. NUMA/KNL tuning/porting (incl. pointer representation, first touch)**
- 5. Chapel for Data Analytics case studies**
- 6. Numerical Libraries: BLAS, GSL, more FFTW, LAPACK**
- 7. Improve resolution for IPE, optimizations, constrained generics**
- 8. Reductions: intents, re-implement op, scalability, partial reductions**
- 9. Single-locale performance: vectorization, OpenMP comparisons**
- 10. Module namespace improvements (filtering, renaming, bug fixes)**
- 11. Interpreter improvements, ideally including parallel execution**
- 12. Complete shootout entry**



On Deck

- **Memory consistency model: Definition and implementation**
 - (this effort has already started)
- **Constrained generics/interfaces/concepts**
- **Task teams and collectives on them**
 - Barriers within coforalls (and possibly foralls)
- **Protect users from internal errors**
- **Improved interoperability, especially with MPI**
- **Additional compilation time improvements**
- **Anonymous associative domains**
- **Further investment in LLVM back-end**

Process Improvement Priorities

- **Issue Tracker: make public; tie into testing system**
- **Modernize maintenance of chapel.cray.com**
- **Test System Improvements**
 - YAML-based test configuration files
 - Support for multi-locale testing configurations
 - Including automating scalability runs
- **Documentation Improvements**
 - Documentation of additional library-like language features
 - Increase use of Markdown and reStructuredText in other docs for web





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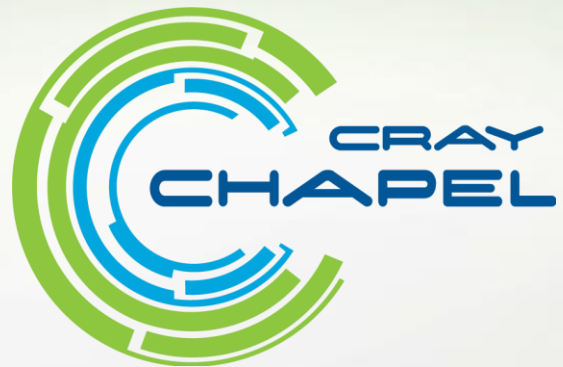
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<http://chapel.cray.com>

chapel_info@cray.com

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