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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