



Chapel

<http://chapel.cray.com>

Programming Model

- **PGAS memory model**
- **Global view of control flow**
 - **main()** started by one *logical* task
 - **additional tasks created over time**
 - using data parallel loops/promotion
 - using task parallel constructs
- **Global-view data structures**

Execution Model

- **A number of multithreaded *locales*, typically one per node**
- **Each can create tasks on others**
- **Synchronization:**
 - sync variables with full/empty bit
 - STM concepts (joint w/ UND/ORNL)
- **Data parallelism over tasks**

Compilers & Tools

- **Compiler: open-source compiler (BSD)**
 - source-to-C implementation targeting gcc, Cray, Intel, PGI, Pathscale, or IBM
- **Platforms supported:**
 - Linux/UNIX, Mac, Windows (Cygwin);
 - commodity clusters of same;
 - all Cray platforms;
 - other HPC platforms, e.g., IBM pSeries

Collaborations

- **Distributed STM: UND/ORNL**
- **CPU-GPU Computing: UIUC**
- **Data-Intensive Computing: OSU**
- **Hybrid Computation, XMT: PNNL**
- **Parallel I/O, Sparsity: UMA**
- **Nanos Tasking: UPC/BSC**
- **Your name here?**