Caliper is a framework to collect, combine, and query application context information and (performance) measurement data in HPC applications. Developers provide application context information through an annotation API and measurement data through measurement modules.

**Goals**

- **Annotate components and write measurement modules independently.**
- **Use them in any combination for any purpose**, controlled at runtime.

**Context Annotation API**

C and C++ APIs are available to provide context information.

```c
C + API example. Application developers can specify hierarchical (phase attribute), scalar (iteration attribute) or user-defined context information.
```

**Case Study: LLNL hydrodynamics code**

We used Caliper to instrument an LLNL radiation hydrodynamics code that uses the AMR library SAMRAI and the linear solver library HYPRE.

- Separate independent annotations added in the program and libraries combined with measurement data enable analysis of the interactions between the components.

Caliper is available on github:

https://github.com/scalability-llnl/Caliper

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