

VampirTrace

VampirTrace provides a convenient measurement infrastructure for application performance tracing. It records the actual data to be analyzed with Vampir or VampirServer.

VampirTrace supports developers with instrumentation and tracing facilities tailored towards parallel and HPC applications. It covers user code as well as MPI and OpenMP instructions.

Instrumentation

The instrumentation modifies a target application in order to detect runtime events of interest, for example an MPI communication operation or a certain function call. This can be done at source code level, during compilation or at link time with various techniques. VampirTrace hides the complicated details. For the user this is as simple as replacing the compiler command inside the makefile with a wrapper command, for example `CC=gcc` replaced by `CC=vtcc`.

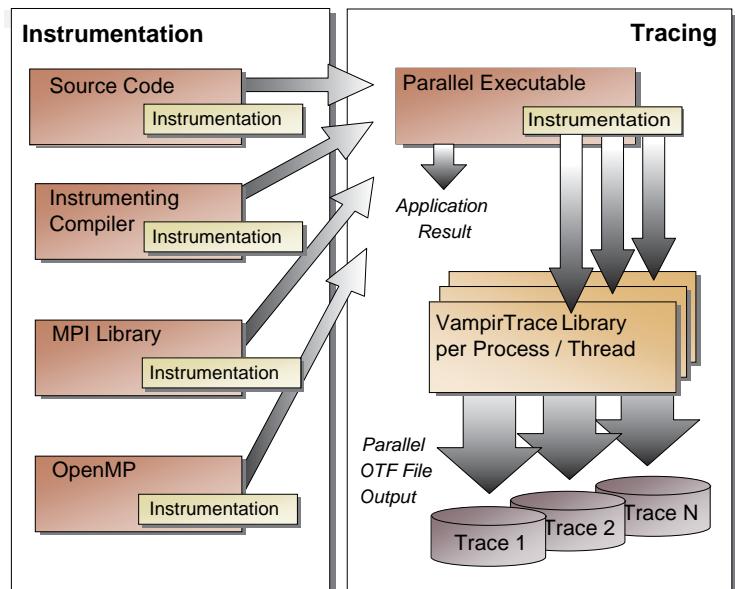
Tracing

Once the application is instrumented, it can be used for a trace run on the parallel platform. The VampirTrace library takes care of data collection within all processes/threads. This includes user events, MPI events, OpenMP events as well as timing information and locations such as cluster node, MPI rank, or thread ID. Furthermore, it queries selected hardware performance counters available on many platforms and records LIBC I/O events.

Availability

VampirTrace is available as Open Source under the BSD license. It supports various platforms, e.g. Linux, IBM incl. Blue Gene, SGI, Sun, MacOS X, and NEC SX series.

Development is done at ZIH, TU Dresden, Germany in cooperation with JSC, Research Center Jülich, Germany, and the Innovative Computing Laboratory at University of Tennessee, USA.



Instrumentation and Tracing with VampirTrace

Instrumentation and Tracing of HPC Programs

- Embedded monitoring infrastructure
- Available as Open Source software
- Part of Open MPI
- Support for MPI, OpenMP, and POSIX Threads
- Support for MPI correctness checking via UniMCI
- Support for C/C++, Fortran, and Java
- Automatic compiler instrumentation for GNU, IBM, Intel, PGI, Sun, PathScale, NEC SX, and OpenUH compilers
- Additional manual instrumentation
- Event filtering and grouping
- Performance counter support via PAPI, Sun CPC, NEC SX, and system resource usage
- LIBC I/O events and memory tracing support
- Writes the scalable Open Trace Format (OTF)
- Supports profiling via OTF summary records

Contact

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