

The analysis of event data with graphical tools like Vampir is an effective way to optimize the performance of parallel applications. Collecting this performance data in a scalable and efficient fashion is a highly demanding task. VampirTrace is our approach to provide a convenient measurement infrastructure to record fine grained performance events, specifically targeting parallel and HPC applications.

Workflow

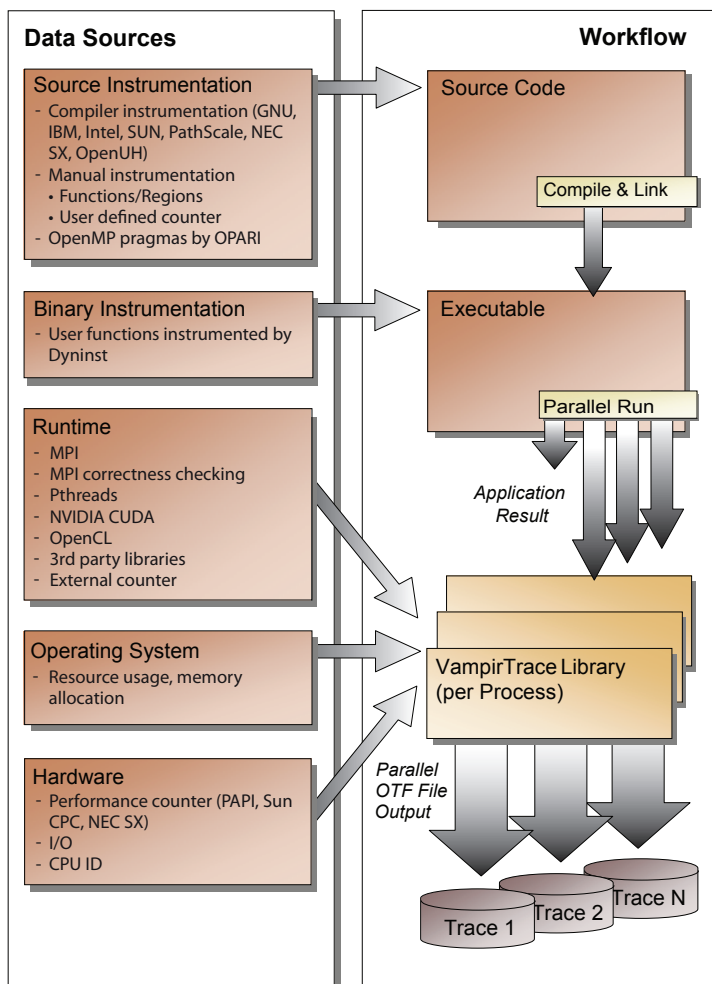
The performance monitoring tool VampirTrace collects event data during the execution of an instrumented application and writes trace files in the parallel Open Trace Format. These files contain fine grained performance events of sequential, thread parallel, process parallel, or accelerator based applications.

VampirTrace supports an extensive set of events such as function and library calls, communication events, and hardware counters. To collect this information, VampirTrace supports various instrumentation methods, including source level instrumentation, e.g., for OpenMP, as well as instrumentation at compile/link time, e.g., automatic compiler instrumentation.

VampirTrace is highly scalable, supporting platforms with more than 10K cores. A powerful filtering feature reduces the amount of information stored in a temporary main memory buffer. Each process/thread flushes this buffer to disk once it is full or the application run ends. An additional unification step is used to post process and synchronize the local traces into a global trace.

Availability

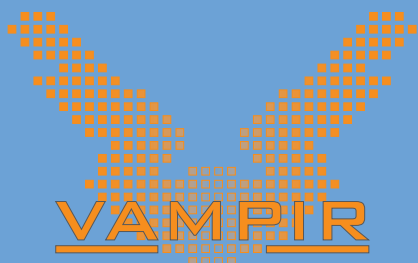
VampirTrace is provided as Open Source under BSD license. Among the supported platforms are IBM BlueGene, Cray XT, Linux, IBM AIX, SGI, Sun, Mac OS X, and NEC SX series. The software is developed at ZIH, TU Dresden, Germany in cooperation with JSC, Research Center Jülich, Germany and the Innovative Computing Laboratory at University of Tennessee, USA. VampirTrace is part of every installation of the popular Open MPI library.



VampirTrace workflow and performance data sources

Key Features

- Portable, open source performance monitor
- Extensive set of data sources
- Highly scalable, supporting platforms with more than 10K cores
- Writes the widely used Open Trace Format (OTF)
- Integrated in Open MPI



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