VI-HPS

VIRTUAL INSTITUTE – HIGH PRODUCTIVITY SUPERCOMPUTING

Monitoring with Score-P

Collecting performance data in a scalable and efficient fashion is a highly challenging task. With the community-driven Score-P scalable performance monitor, we support a convenient measurement infrastructure for recording fine-grained performance events with special focus on parallel applications.

Score-P Overview

Score-P is a highly scalable and easy-to-use infrastructure for profiling, event tracing, and online analysis of HPC applications. It is the common successor for the monitoring systems from Vampir, Periscope, Scalasca, and TAU.

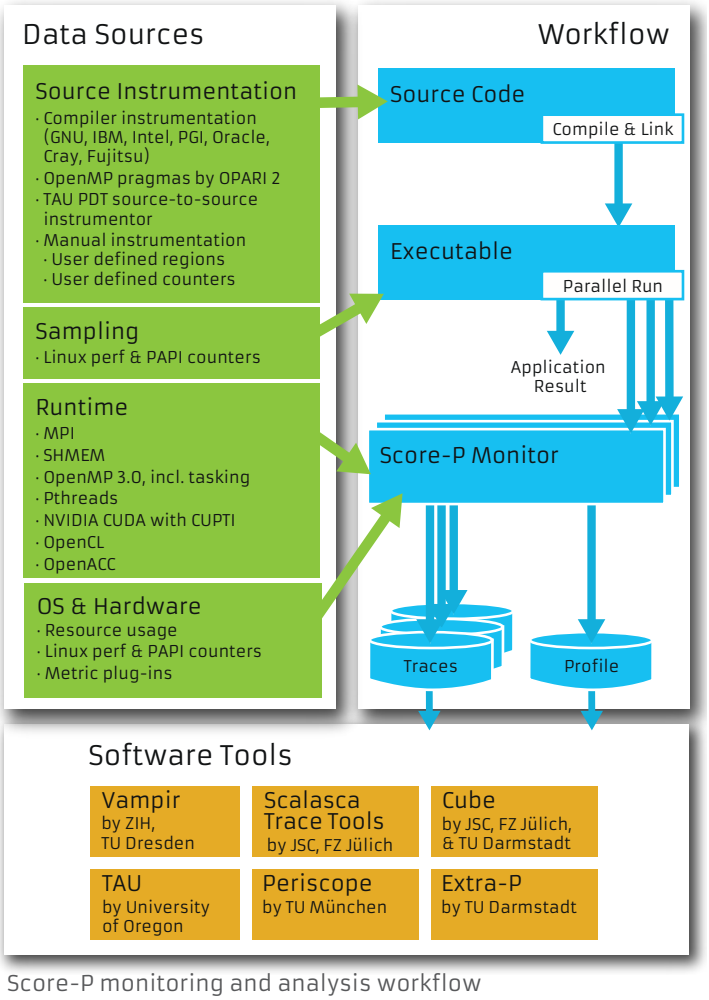
Score-P is jointly being developed by Jülich Supercomputing Centre, RWTH Aachen University, Technische Universität Dresden, Technische Universität München, Technische Universität Darmstadt, and University of Oregon. It has been funded by the German Federal Ministry of Education and Research, the EU, and by the US DOE.

Workflow

Score-P collects event data during the execution of an instrumented application and creates either a profile in CUBE4 format, or trace files using the parallel Open Trace Format Version 2 (OTF2). Both operation modes can be used without re-compilation of the application.

The profiling data can be used to filter trace events and create smaller trace files. Score-P supports an extensive set of events such as function and library calls, communication events, and hardware counters. To collect this information, Score-P supports various instrumentation methods, including instrumentation at source level, and at compile/link time. Recently, experimental support for sampling has been added (x86_64 only).

Score-P is highly scalable, supporting platforms with more than 500K cores. The produced data can be analyzed by the widely recognized performance tools TAU, Scalasca, Vampir, Cube, and Periscope.



Score-P monitoring and analysis workflow

Key Features

- Highly scalable, supporting platforms > 500K cores
- Supported platforms: Linux, IBM Blue Gene and AIX, SGI, Cray, Fujitsu, Xeon Phi (native) and more
- Supported parallelization models: MPI, SHMEM, OpenMP, Pthreads, NVIDIA CUDA, OpenCL, OpenACC and others
- Profiling (CUBE4) and event tracing (OTF2)
- Extensive set of performance data sources
- Available as open source under a 3-clause BSD License