VI-HPS

VIRTUAL INSTITUTE – HIGH PRODUCTIVITY SUPERCOMPUTING

Monitoring with Score-P

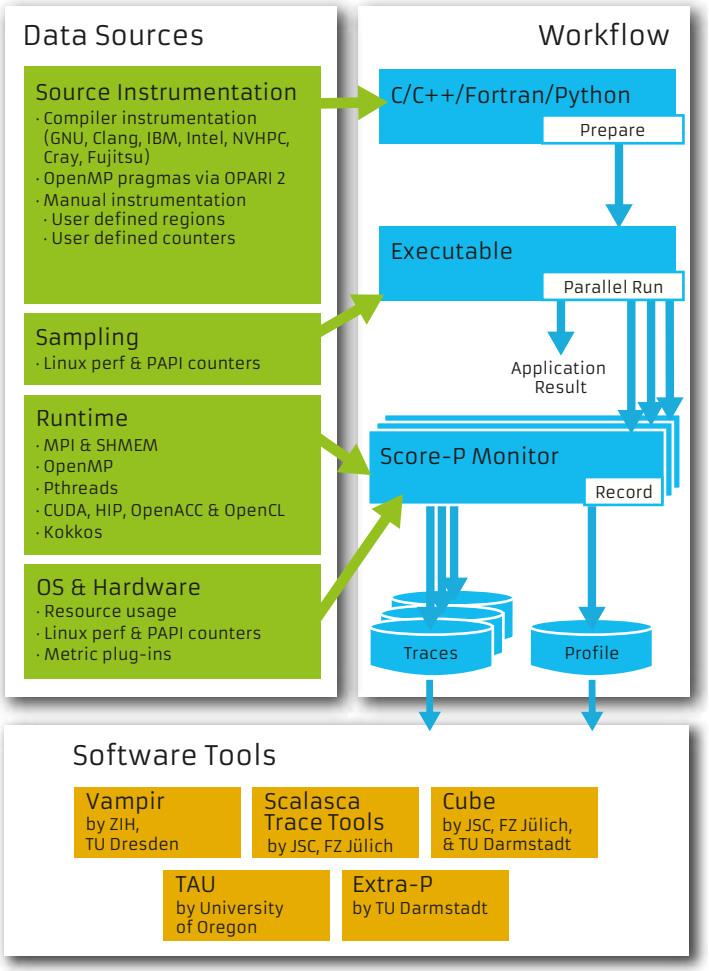
Collecting performance data in a scalable and efficient fashion is a highly challenging task. With the community-driven Score-P scalable performance monitor, we support a convenient measurement infrastructure for recording fine-grained performance events with special focus on parallel applications.

Score-P Overview

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

Score-P is jointly being developed by a consortium of multiple VI-HPS partner institutions from Germany and the US.

This collaborative effort has received funding from various sources, including the German Ministry for Education and Research, the US Department of Energy, the European Commission, and also from industry.



Score-P monitoring and analysis workflow

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.

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, and Cube.

Key Features

- Highly scalable, supporting platforms > 500K cores
- Supported platforms: Linux clusters, HPE Cray, Fujitsu & more (using x86_64, Power & ARM)
- Supported parallelization models: MPI, SHMEM, OpenMP, Pthreads, CUDA, HIP, OpenACC, OpenCL & Kokkos
- Recording of I/O operations (POSIX, ISO C & MPI I/O)
- Profiling (CUBE4) & event tracing (OTF2)
- Expandable by plug-ins to add new performance data sources, output formats, or in-situ data processing (https://github.com/score-p)
- User library wrapping for C/C++ libraries
- Available as open source under a 3-clause BSD license

Contact: support@score-p.org | URL: www.score-p.org