

Forschungspraxis

Processing Simulation based Tracing Information

Having an understanding of what the system is doing and how long certain steps require is important to determine the performance of the system and identifying potential bottlenecks.

Software tracing tools, which are widely available, provide a good performance overview of the system, showing the different operations or function each CPU is executing. However, extensive tracing in software results in substantial overhead for the system, meaning that it is inadequate to trace short events in the range of a couple of clock cycles.

In full system simulators like gem5 we can introduce custom hardware tracepoints for various components in the system. Hardware tracepoints can be directly generated by the simulated component such as CPUs, accelerators, caches...

The goal of this internship is to combine the software and hardware tracing option to obtain a better overview of the whole system.

Prerequisites

Proficient in:

- Python
- C/C++

Good knowledge of Linux

Advisors

Tim Twardzik