SkyPat: C++ Performance Analysis and Testing Framework

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Abstract

This paper introduces SkyPat, a C++ performance analysis toolkit on Linux. SkyPat combines unit tests and perf_event to give programmers the power of white-box performance analysis.

SkyPat behaves like a normal unit test library. It provides macros and assertions to ensure correctness and to evaluate performance of a region of code. We want to point out that, under the high reliability, the evaluation is precise. With perf_event, SkyPat can analyze running time of a region without interference to scheduler. Moreover, perf_event also gives SkyPat precise cycle counts that are useful for tools who are sensitive to variance of timing, such as compilers. With pure and precise timing information, SkyPat helps to measure the bottleneck of regions of a program.

We develop SkyPat under the new BSD license, and it's also the unit-test library of the "bold" project.

References

[1] Christoffer Dall and Jason Nieh Columbia University, "KVM for ARM," in *the proceeding of Linux Symposium 2011*