1. Abstract

Performance analysis and tuning is an important step in programming multicore and manycore architectures. There are several tools to help developers analyze application performance; still, no tool provides recommendations about how to tune the code. AutoTune will extend Periscope, an automatic online and distributed performance analysis tool developed by Technische Universität München, with plugins for performance and energy efficiency tuning. The resulting Periscope Tuning Framework will be able to tune serial and parallel codes with and without GPU kernels; in addition, it will return tuning recommendations that can be integrated into the production version of the code. The whole tuning process, consisting of both automatic performance analysis and automatic tuning, will be executed online, i.e. during a single run of the application.

2. Motivation

The shift to multi- and many-core architectures made it more complex to develop effective parallel programs. It focuses on automatic tuning for multicore- and manycore architectures. There are several tools to help developers analyze application tuning process, but none of them provide recommendations about how to tune the code. AutoTune's Tuning Framework will...