

Performance Analysis of Parboil Benchmark using RenderScript

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1. Methodology

1.1 Performance Analysis

Parboil is unique in the it offers optimized benchmark implementations for different targets. Benchmarks have been ported for multicore configurations using C/OpenMP, GPU implementations using CUDA and OpenCL exist as well. There is currently no way to run CUDA on Android devices, but OpenCL 2.0 [2] does have support for *Android Installable Client Driver Extension*. If OpenCL is supported by Android, then we will do performance measurements using it as a base line. If not, then we will use a native client multi-threaded C implementation as our base line.

1.2 Power Analysis

Aside from performance, power is an important factor for mobile applications. Based on a quick survey, there does seem to be power profiling tools for android [1]. We will be looking at how the change in language impacts the power usage of the device.

1.3 Hardware

While development will be against the Android emulator, our performance metrics will be measured on real hardware. Currently we have access to a Nexus 7 Android tablet, but we will contact the Android development team to find if there is a way to get access to more devices to run our benchmarks.

2. Schedule

References

- [1] Google. Power profiles for android, Feb. 2014. URL <http://source.android.com/devices/tech/power.html>.
- [2] Khronos. Khronos opencl 2.0 specification, Feb. 2014. URL <https://www.khronos.org/opencl/>.