The "Smooth" challenge

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Introduction

We have been provided with a piece of code that concerns a computational kernel extracted from a research project at Imperial College London on dynamic mesh adaptation[**?**]. The aim of this series of experiments was to figure out how to run this program as fast as possible on a given architecture.

We have been given access to the HPC's PC cluster to run the results of our experiment on. Since the HPC system uses the PBS Pro queuing system to manage the execution of jobs on the compute resources it can often take some time to run a single result. Since our project predomenantly involved porting the code to the GPU we also developed our code on the lab machines.

Technologies

Hardware

Labs The lab machines we ran our code on have an Intel Core i5 650 3.2GHz processor and a GeForce GT 330 CUDA enabled graphics card with compute capability 1.0.

CX1 The CX1 machine has...

Software

The softwares we have made use of on both lab machines and cx1 are:

- **CUDA Compiler Driver NVCC** which ...
- **CUDA Command Line Profiler**
- **Python** for scripting of both profiled results and benchmark scores

Hypothesis

The Potential Advantage

Effectiveness

Conclusion

Group Work