Report

Andreas Karlsson and Niten Olofsson

April 1, 2015

Contents

Abstract

1 Introduction

1.1 Background

1.2 Aim

2 Performance

From assignment: Prioritize measurements and analysis/interpretation!
Demonstrate use of tools (profiling, ...) , and simple performance model.

2.1 Measurements

2.2 Profiling

3 Results

3.0.1 Motivational R-side measurements

To motivate the need and choice to go parallel Figure 1) shows the processes from the R-side where ".Call" is the part which is implemented in C++ and which can be run in parallel.

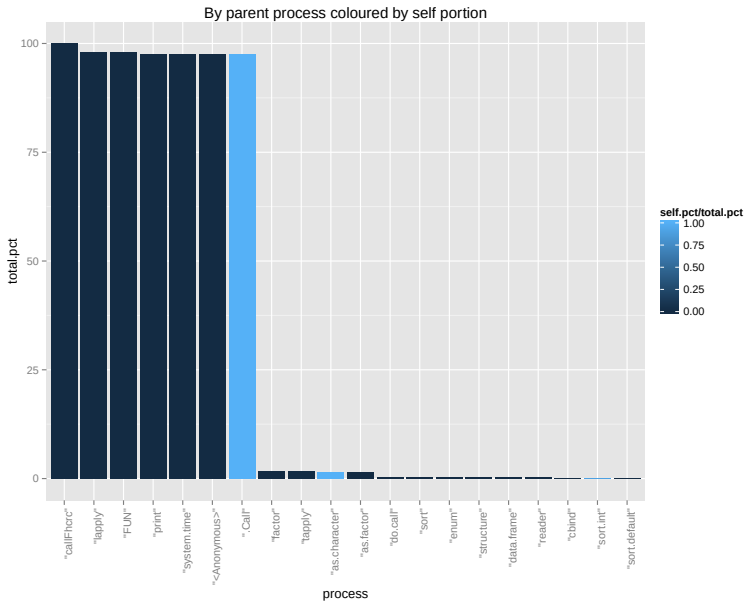

Figure 1: Performance testing on the R side, where the ".Call" is the C++-code which can be run in parallel.

3.1 Baseline measurements C++

3.2 Simple approach with OpenMP

Here the simulation loop is run in parallel whereas the data output and some post-processing is run within a omp critical statement.

3.3 Data output in parallel

3.4 Simple approach with OpenMP

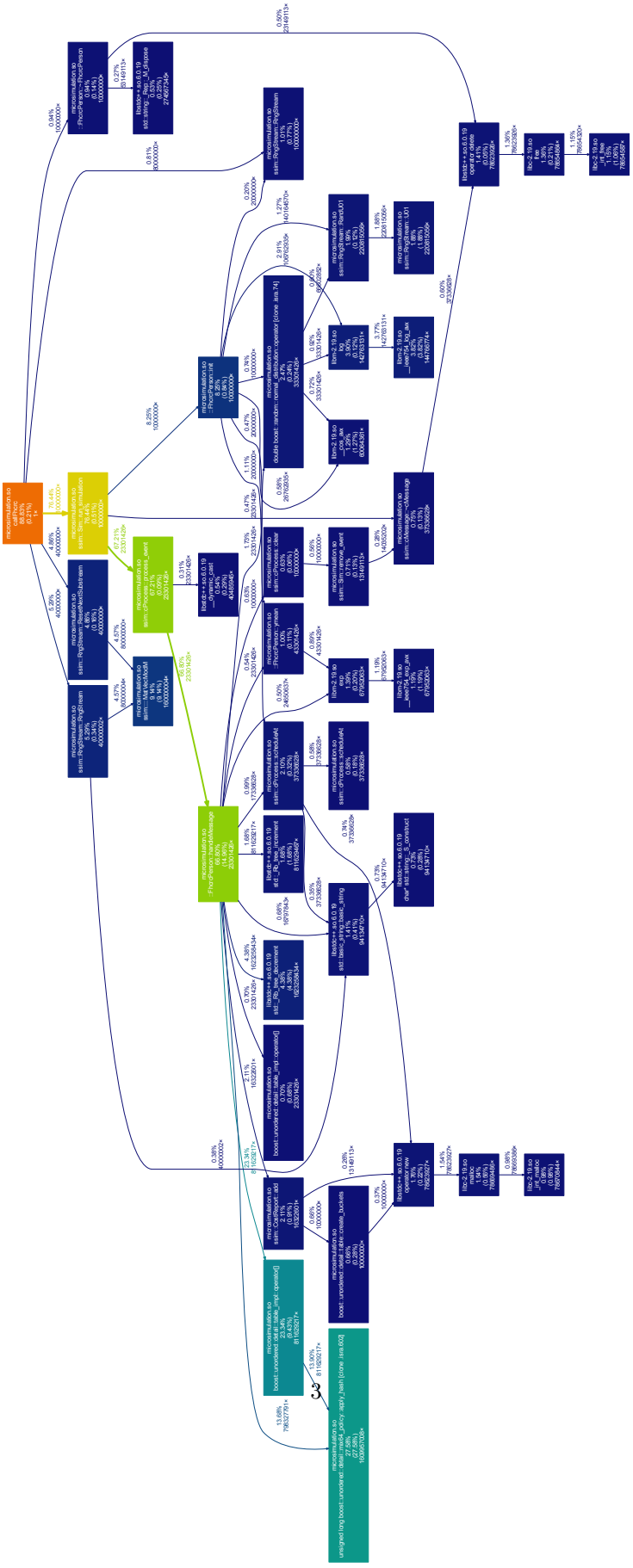

Figure 2: Valgrind measurements at baseline

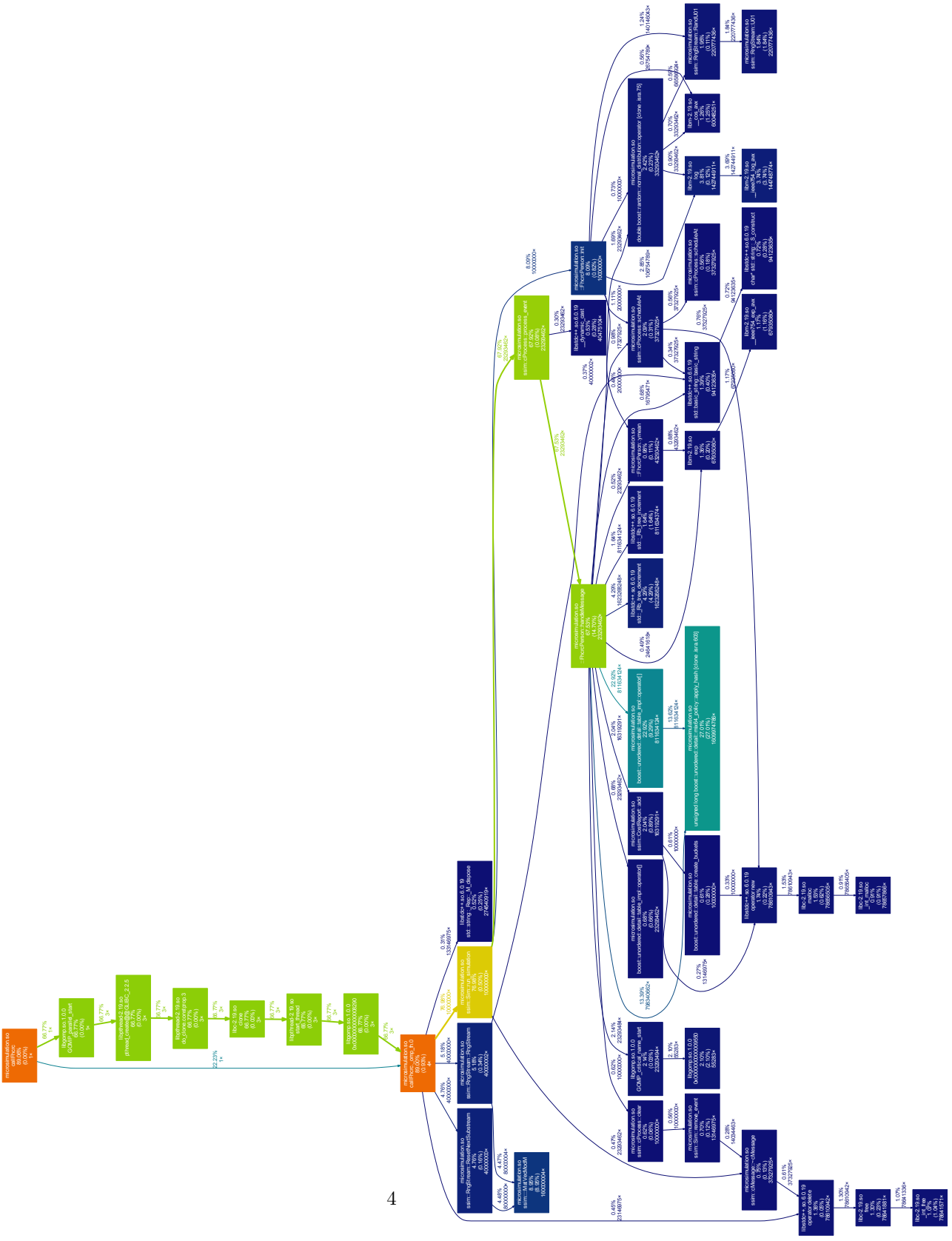

Figure 3: Valgrind results of the simple openMP implementation