Boost.Phoenix - Google Summer of Code 2010 Proposal

Thomas Heller

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Personal Details

Name	Thomas Heller
University	of Erlangen-Nuremberg (Germany)
Major	Computer Science (M.Sc.)
Email	thom.heller@gmail.com

Availability

During the major time period of GSoC i have lectures and/or exams. A weekly time slot of about 20 hours can be provided nevertheless. The proposed start and end dates from Google are acceptable.

Background Information

I recently finished my Bachelors of Science degree in a program called "Computational Engineering", this program contained lectures from Engineering, Mathematics and Computer Science with a focus on Simulation and High Performance Computing. My bachelor thesis was "SSE optimization of the pe Physics Engine" which tried to combine the power of low level assembly language with modern C++ Techniques. I used Expression Templates as one method. Last semester I assisted a C++ Programming introduction lecture, by helping students with their programming assignments. I did an internship at the Lawrence Livermore National Labs during the last summer where i worked with the ROSE compiler group. One of the other intern and I worked on a code visualization toolkit with Qt.

My current programming interests are in template metaprogramming. I recently started experiments with Boost.Mpl, Boost.Proto and Boost.Fusion. These three libraries have the power to be the foundation of any decent modern C++ libraries. Additionally the idea of functional programming recently caught my attention. Though I have never learned a functional programming language the possibilities offered by libraries such as boost.phoenix raised my attention. My personal goal after finishing that project is to have a deeper insight in functional programming, template metaprogramming and modern extendable C++ library design.

I rate my C++ knowledge with 4, the same goes for the C++ standard library. I consider my knowledge of the boost with 3 because i haven't used all of the libraries, yet. I am used to Subversion and am quite familiar with it. I develop my software with a terminal emulator and vim. The documentation tool i am most familiar with is Doxygen. DocBook and Quickbook work for me as well.

Project Proposal

This project is aiming for a re-implementation of the Boost.Phoenix library. While already accepted as a main citizen of Boost, there are several things to consider before all conditions are met. The main requirement is a rewrite with the help of Boost.Proto. Based on already developed prototypes, this projects aims to provide an interface matching the following conditions:

- Based on primitive building blocks

- Easy to extend

After this basic work, the adaption of the previously developed work with phoenix can begin.

Proposed Milestones and Schedule

Depending on the amount the different approaches take to evaluate, the schedule is not fixed. As I am not fully aware of what to expect, there is no fixed set of milestones.