

## **European LLVM Conference 2014**

### **Europe's largest open-source compiler conference brings together industry and HiPEAC members**

The fourth European LLVM conference (EuroLLVM) took place from April 7th-8th in Edinburgh. After previous events in London and Paris, the conference was held in Scotland's capital for the first time. It attracted over 200 attendees from industry, academia, and the open-source community from Europe, the US, and Asia. The conference programme included two keynote speeches, fourteen technical presentations in two parallel tracks, two hands-on tutorials, ten lightning talks, a number of posters, and ample time for networking between participants during an informal "Hackers' Lab" and a conference gala dinner. The content presented at the conference has been published on the conference website.

Celebrating 10 years last year since the release of version 1.0, LLVM has become one of the most widely used compiler frameworks and is backed by a vibrant open-source community that includes contributors from major industry players as well as academia and hobbyists. With Clang, the project provides one of the leading C/C++ compilers and the first to fully implement the new C++11 standard. It forms the basis for a wide range of industrial products and academic research projects, with over 1000 publications citing LLVM. The LLVM Foundation, a non-profit entity to coordinate the project, has recently launched in the US and is hoped to further strengthen the growing community.

The EuroLLVM conference serves as a venue to discuss recent innovations and hot topics around the LLVM project. In the first keynote, Chandler Carruth (Google) discussed the current optimization pass manager, its shortcomings, and his ongoing work to improve it. Marshall Clow (Qualcomm) used his keynote speech to give the audience a taster of the upcoming C++14 standard and future developments in the ISO C++ standardization process. The technical presentations covered many different aspects of LLVM development and its use in various domains. These included a talk by the Sony compiler team about the recently launched LLVM-based compiler toolchain for the PlayStation 4; the presentation of Google's Portable Native Client project; a talk about the new little-endian PowerPC ABI developed by IBM; and the launch of a Clang-based frontend for the icc compiler by Intel. Two hands-on tutorials, one on backend development, another on automating large-scale code refactoring, gave participants a chance to learn about these important use cases from experts in the field. Posters and lightning talks complemented the talks and gave the audience an impression of the diverse projects that make up the LLVM ecosystem.

In addition to technical presentations, the EuroLLVM conference was also an opportunity for members of the community to meet and network in person. For an open-source project with collaborators and users spread across countries and continents, such occasional face-to-face interaction is crucial. Due to the high amount of industry participation (>60% of attendees), the conference also fosters the exchange of ideas between industry and academia and serves as a recruitment opportunity for skilled engineers and researchers. The many lively discussions during the coffee breaks, the Hackers' Lab, and the gala dinner at the National Museum of Scotland attest to the importance and success of this aspect of EuroLLVM.

Tobias Edler von Koch, who organised the conference alongside colleagues from the University of Edinburgh and the LLVM community, was especially thankful for the support of the many industrial sponsors: "EuroLLVM 2014 would not have been possible without the generous financial support by ARM, Qualcomm, Codeplay, HSA Foundation, Google, and Parrot." With overwhelmingly positive feedback from participants, the event was a great

success. "The level of attendance and the quality of the presentations reflect the impressive strength of the LLVM community in Europe, which continues to grow every year", says Philippe Robin, Director Open Source at ARM. Planning is already under way for the next iteration of EuroLLVM in 2015.

To view the conference programme and presentation slides, visit <http://llvm.org/devmtg/2014-04/>