MAXELER Technologies
MAXIMUM PERFORMANCE COMPUTING

FCCM 2017 Design Competition

Competition

The Maxeler design competition is an open-topic competition for students and researchers targeting any application on a Maxeler Dataflow Engine (DFE). Both individual entries and team entries are allowed.

A prize of $1000 plus one Maxeler Galava card will be awarded to the winning project at the FCCM conference.

Submission

Eligible for submissions are tested and working applications developed in MaxCompiler targeting any Maxeler board. This includes previously published works. The submission must include a working executable and the necessary input data to run the application and evaluate performance.

The submission must also include a document with a short description of the application. It should list the compiler version used and the target DFE model.

Submitting source code is not required; however, including source code will help us evaluating the technical quality of the implementation (see Evaluation).

The submission may also include supplementary material such as a video showing the running the application.

If you currently do not have MaxCompiler or a Maxeler board, we can provide MaxCompiler free of charge to universities and we can provide remote access to a development platform with Maxeler hardware. To obtain access, please join the Maxeler University program and state "FCCM design competition" in your enquiry. Please contact: maxup@maxeler.com

Registrations and submissions can be made here:

https://designcompetition.maxeler.com

Submission Deadline

The submission deadline is 7 April 2017.

Evaluation

The project will be evaluated under the following criteria:

- Performance (50%)
- Technical complexity (25%)
- Usability and documentation (25%)

The performance evaluation is based on how well the design is engineered for high performance rather than a simple speed-up factor. It is not the goal to present an inflated speed-up number that compares a highly optimised DFE implementation to a single-threaded CPU program without optimisations. Instead, the DFE implementation should be compared with an *optimised* software implementation. This may result in a lower speed-up factor but represents a more realistic

outcome. The baseline software version should be optimised and multi-threaded if possible. Comparisons can also be made to results found in other scientific publications. The DFE implementation should be optimised as much as possible using the available dataflow programming techniques, and target multiple DFEs (if available in the system). Users of older systems, or smaller systems with fewer DFEs, will not be disadvantaged in the performance evaluation.

The technical complexity considers the complexity of the design and its functionality. This includes a range of aspects such as complexity of the targeted algorithm, optimisations on the CPU side and on the DFE side, using multiple DFEs with MaxRing, and integration with other software or libraries.

The usability and documentation takes into account if the design can be easily run to reproduce the results. The submission should include a sample input and clear descriptions how to run the design. The documentation should briefly outline the algorithm or functionality targeted in the submitted design. Furthermore, key implementation features and dedicated optimisations should be listed. The documentation should also describe the compiler version used, the hardware that was targeted, and it should show performance results.

Conference Presentation

The competition winner will be announced at the FCCM 2017 conference.

All submissions will be listed on the competition website. We will also invite competition participants to show their application at the Maxeler stand during the conference demo night.

Terms

You retain ownership of your submitted materials. In exchange for your participation in the program, you understand and agree that you are granting to [Maxeler Technologies] ("us," "we") a non-exclusive, perpetual, non-revocable, worldwide right and license to your submission, including all code, binaries, documentation and other materials. This means we may use this material in any way possible, including to reuse the code, create demos, assign, publish or summarise the submitted material and results. Since this is a program to recognize achievement, you agree to only submit materials that are original to you, without viruses, and permitted by law to be used as intended by this program. We disclaim all liability for the use of submitted materials and our services. All decisions are final.

For any enquiries or clarification of the submission rules, please contact: maxup@maxeler.com