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emmtrix Technologies

Performance Estimation |
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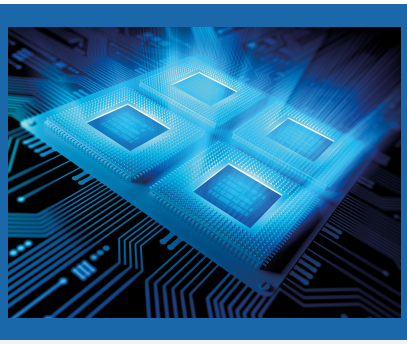


emmtrix Newsletter, November 2022

{{ contact.ANREDE }},

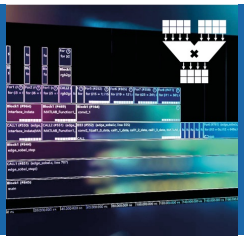
At the end of the year we would like to give you an update from our development, introduce you to one of our business partners, and point out upcoming events and presentations where you can meet us in person.

Performance Estimation

Your solution to estimate the performance of your application

As part of improvements for emmtrix Parallel Studio (ePS), we reworked our performance estimation capabilities to produce more accurate results. Our static source code analysis can now use assembler code or the intermediate representation of LLVM as input, to calculate a more accurate performance estimation that considers compiler optimizations. Together with more advanced processor descriptions which model the processor pipelines, the estimated values are now much closer to measurements on the hardware.

This improved performance estimation is currently part of ePS, but a new standalone product from emmtrix focused on getting timing information very early in the development flow will be announced soon.



Automated Vectorization

Your solution to vectorize your application

In order to support the vector processing units of modern processors like the Infineon AURIX™ TC4x or RISC-V with vector extensions, we extended our code transformation and parallelization features to automatically generate vectorized C code for supported platforms. It takes care of padding, using intrinsic function calls and can be adjusted to different vector sizes. With this approach, speedups of factor 10 or more can be achieved easily for suitable applications.

The mentioned vector processors are only the first use cases for this kind of technology and we will evaluate further applicability with different accelerators.

Tensor embedded GmbH

Introducing our partner

emmtrix Technologies has accumulated a significant amount of expertise in the domain of performance estimation, providing solutions that help automotive project development teams to analyse timing behaviour, detect high-runners and ensure timing constraints are met. These tools can easily be integrated into continuous integration workflows to detect when timing violations have been introduced in the project's history.

tensor develops tools for proving a defined timing behaviour with hundreds of software-components integrated into multi-controller systems using highly sophisticated stochastic models that are deduced from trace data.

Combining the tensor and emmtrix solutions allows our customers to optimize their components and ensure a coherent and integrated behaviour of their embedded real-time systems.

Trip to Japan

emmtrix goes international

In November, our managing directors, Dr. Timo Stripf and Rainer Heim, will be in Japan. The aim of this trip is to deepen our cooperation with existing customers and meet face to face with prospects that our value-added reseller NeXtream has been talking to. The Japanese market has been steadily increasing in importance for emmtrix (technologically and financially) and will continue to do so.

For more information on the Japan trip, please follow our LinkedIn Company Profile. We will keep you up to date there.

Nov 17, 2022 |
Pacifico Yokohama

During the trip Timo will give a presentation at the annual Embedded Multicore Summit (EMS) 2022, which is organized by the Embedded Multicore Consortium and provides a comprehensive overview of multicore fundamentals, market trends and the latest technology trends.

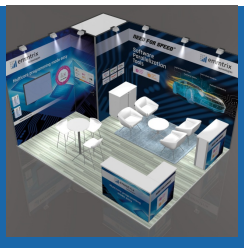
In his presentation ***Automated Parallelization for embedded multicore platforms,*** Timo will showcase how an algorithm that is hard to parallelize is optimized for the execution on an Infineon AURIX™ multicore microcontroller using an automated toolchain.

Additionally, he will show how different target platforms can be specified leveraging the SHIM

standard (IEEE2804) and how accelerators like vector processors can be addressed by such a workflow.

The presentation is live and cannot be attended remotely. However, if you are interested in the topic, contact Rainer Heim to get an exclusive/personal introduction.

Contact Rainer



Upcoming Events 2022

We are looking forward to the exchange with you!

Nov 15 - 16, 2022 | Baden-Baden, Germany | Booth no 19

Visit our booth at ELIV MarketPlace 2022. Our focus will be on performance estimation and automated vectorization.

Register now

Make an appointment

Dec 05 - 09 | Sindelfingen, Germany

This year we will again be present at the Embedded Software Engineering Kongress (ESE) 2022 in Sindelfingen with a booth and a presentation.

At our booth you can expect: Detailed information about our tool emmtrix Parallel Studio and its three functions, including regular 3-minute live demos on:

- Parallelization
- Automated Vectorization
- Performance Estimation in CI/CD
- Expert knowledge: White Paper on the topic performance estimation
- Challenging task for all software developers (active and former) with, of course, a fantastic prize.

Make an appointment

Preconference | Dec 02, 2022

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Oliver Oey, Technical Product Manager at emmtrix,

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will demonstrate in 20 minutes with the development of a Kalman filter how static performance estimation can be used very early in the development to meet the timing requirements. The presentation is free of charge and can be accessed online.

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Conference | Dec 08, 2022 | 11:45 - 12:25 pm | Room Vienna

Oliver Oey talks about ***Statische Performanz-abschätzung in frühen Phasen der Software-Entwicklung*** (*Statical performance estimation in early phases of software development*). The presented methods of static code analysis are evaluated based on experiences from a sample application from the automotive sector.

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