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MULTICORE PROGRAMMING MADE EASY

SILEXICA

multicore meets simplicity

SILEXICA FOR...

*p++ EMBEDDED SOFTWARE DEVELOPERS

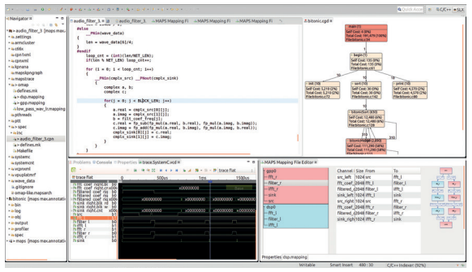
Silexica provides a complete parallel software development tool suite for programming complex multicore applications. Write software without the need to understand low-level hardware platform details.

SEMICONDUCTOR VENDORS AND IP PROVIDERS

Silexica provides custom programming environments, tailored for selected off-the-shelf multicore chips and IP blocks. Avoid costly in-house tools development. Rely on Silexica´s comprehensive expertise in multicore software development. Provide tailored programming tools solutions to your licensees. Expose the full capabilities of your multicore IP to the customer´s applications.

HW/SW SYSTEM ARCHITECTS

Based on early software performance and power estimation technologies, Silexica tools enable detailed insight into the capabilities of multicore platform architectures even in pre-silicon design stages. Find out quickly what is the best platform and processor configuration for your application.



APPLICATIONS

WIRELESS COMMUNICATION

MOBILE DEVICES

AUTOMOTIVE ELECTRONICS

CUSTOMER BENEFITS

NRE COST REDUCTION

Dramatic cuts in software engineering costs due to automation and optimization in sequential software parallelization, task mapping and low-level code generation. Preserving legacy code investments when porting complex software to new hardware platforms.

QUALITY OF RESULTS

Full utilization of the multicore hardware resources, leading to an optimal parallel software performance that meets all latency and throughput constraints. High software robustness due to „correct-by construction“ automated generation of hardware-dependent code.

FLEXIBILITY

Modular integration into the customer´s programming flows and software tool environments. Efficient code generation for both homogeneous and heterogeneous multicore architectures. Straightforward scalability for new software workloads or future hardware platforms.

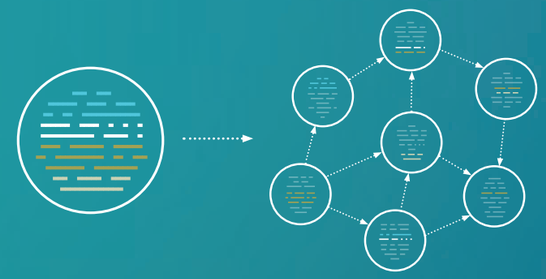
END USER BENEFITS

Higher performance, longer battery lifetime, higher software reliability, maximum system availability, enhanced functionality, better quality-of-service and user experience.

PRODUCTS

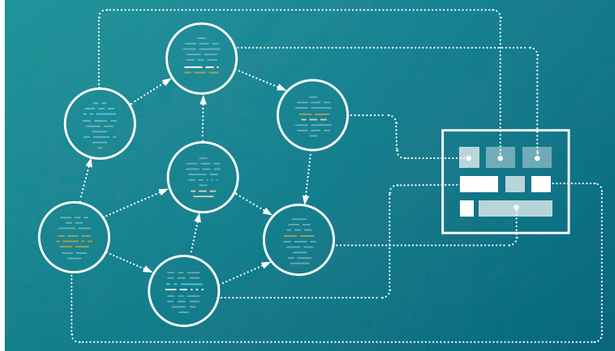
SLX PARALLELIZER

SLX Parallelizer takes sequential C code as input and turns it into a parallel specification by static and dynamic code analysis. Different parallelism patterns, such as task-level, data-level and pipeline-level parallelism, are detected which are guaranteed to deliver performance improvements for a given multicore platform. The parallelized version can be exported as C code with standard parallel annotations / APIs such as OpenMP or as a CPN specification (“C for Process Networks”) into the SLX Mapper for further refinements.



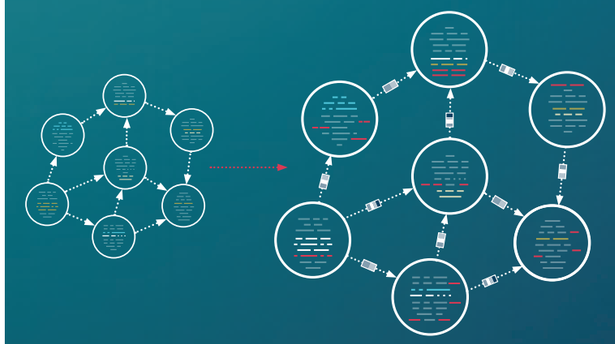
SLX MAPPER

As input, SLX Mapper takes a parallel application specification in the form of a process network, which consists of a number of parallel processes that communicate over logical channels. Using advanced compiler technology to analyze the computation and communication patterns, the SLX mapper automatically selects the optimal mapping of processes, channels and data buffers to a given multicore architecture. Additionally, the user can specify real-time, resource or energy constraints. The computed spatial and temporal application mapping can be advanced to the SLX Generator or to a customer’s in-house code generator to create the binary programs.



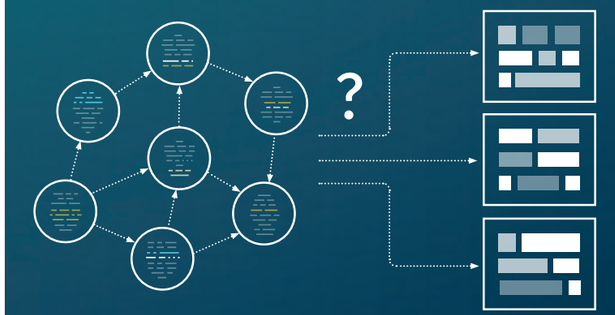
SLX GENERATOR

SLX Generator uses a unique source-to-source compiler technology to produce highly optimized C code for the individual processors of a target multicore platform. It receives the optimized software distribution computed by the SLX Mapper and automatically selects the best APIs for task management, synchronization and communication. The output of the SLX Generator can be directly compiled with the native C compiler toolchains of the individual cores. The base version of the SLX Generator supports a number of selected off-the-shelf multicore platforms. Extension to support new platforms can be jointly developed with the customer in short time.



SLX EXPLORER

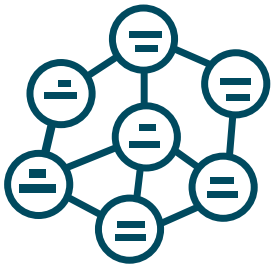
SLX Explorer is a retargetable version of the SLX Mapper with a user-editable abstract multicore model for system architects. It allows to search the best off-the-shelf multicore platform for a given application and to perform “what if” analyses with respect to software and hardware changes to drive exploration, design, and evolution for next generation multicore systems. SLX Explorer employs Silexica’s platform model and in-house parallel performance estimation technology to enable faster turn-around times by 2-3 orders of magnitude.

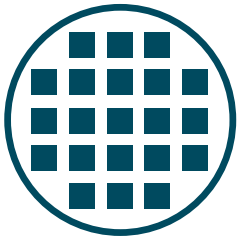


SERVICES

CUSTOM CODE GENERATION BACKENDS

Silexica provides tailored versions of SLX Generator for custom, application specific multicore architectures. This service addresses customers focused on company-internal multicore IP and in-house firmware development, e.g. accelerator blocks and interconnect architectures, or custom middleware APIs.



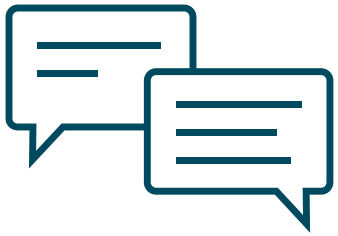


OEM SUPPORT

Silexica provides specialized programming environments for multicore semiconductor vendors and fabless IP providers under an OEM license model. OEMs that prefer to outsource development of the corresponding software programming environment can redistribute Silexica's platform-specific tools to their customers.

CONSULTING AND TRAINING

Silexica engages with selected customers in individual, highly solution-oriented, collaborations in multicore software and systems development. Silexica engineers work closely with customers and partners in order to solve specific parallel software issues, develop new tools interfaces or optimize performance or power consumption for a given application.



SILEXICA SOFTWARE SOLUTIONS GMBH

Karmeliterstr. 10
52064 Aachen
Germany

Phone: +49 241 990343 21
Fax: +49 241 990343 73
Email: info@silexica.com
www.silexica.com