



ERIKA Enterprise and RT-Druid for Altera Nios II

ARTIST2 requirements for flexible scheduling workshop, June 14 2006

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www.evidence.eu.com

“ We provide innovative software solutions for the design and the development of real-time embedded systems, with a special focus on multi-core hardware platforms. ”



automotive

real-time control SW

complex software applications

integration of components

system-on-chip

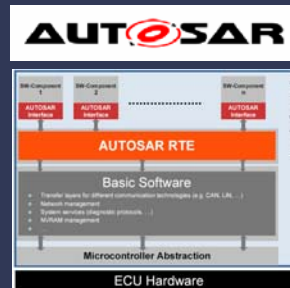
multicore system-on-chip



technology trends

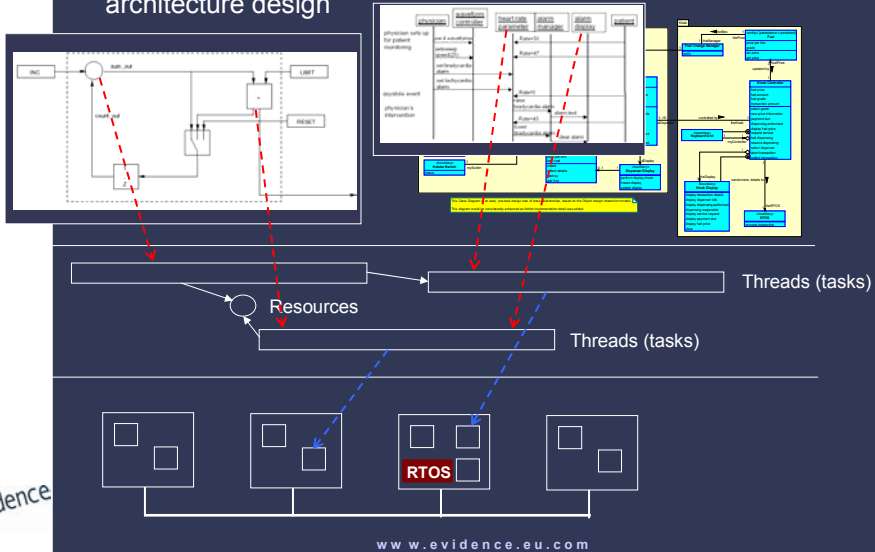
standards

OSEK / VDX



SW development process

- Design (continued): matching the logical design into the SW architecture design



AUTOSAR

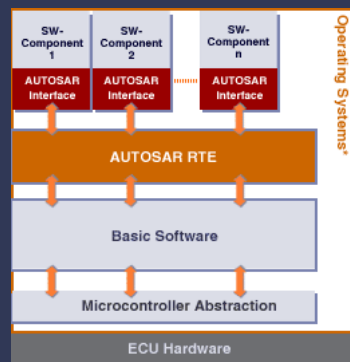
<http://www.autosar.de>

technical goals

- modularity
- scalability
- transferability
- re-usability of functions

AUTOSAR

- provides a common software infrastructure for automotive systems of all vehicle domains
- system-wide and configuration process optimization to meet the runtime requirements of specific devices and hardware constraints
- Applicative domains: Powertrain, Chassis, Safety (active and passive), Multimedia/telematics, Body/comfort, Man-Machine Interface



protected OSEK

- requirements for mutual protection of separately written applications
- protection requirements of individual sections of single applications e.g. for a guaranteed fail-safe operation
- requirements of protected data for security systems
- guidelines for hook routines, deadline monitoring

requirements

- be able to integrate different components/applications inside the same ECU
- scheduling on the distributed level (CAN, Flexray, end-2-end)
- integration by source code / binary objects inside the same system
- application with hard and soft real-time constraints running together
 - hard → some are time-triggered!
 - soft → oversampling? - % of missed deadlines? – sometimes always overloaded
- protection between different applications running on the same target
 - memory/timing protection
 - analysis not addressed by AUTOSAR
- small constraints systems → OSEK/VDX, not POSIX!
- some work will be done inside the IST INTEREST project