

Real time. Real solutions.

www.realtimeexperts.com

Integrated
tool chains
for real-time systems

**REAL-TIME
EXPERTS**

Syntavision
Gliwa
AbsInt

Real time. Real solutions. Real-Time Experts.

Real-Time Experts: A strong alliance since 2008.

The Real-Time Experts alliance was founded in November 2008 by AbsInt, Gliwa and Symtvision to provide comprehensive, integrated and efficient solutions for mastering the timing of complex embedded real-time systems. The Real-Time Experts draw on the tools, expertise and methods of the participating specialists – from timing design through debugging to verifying real-time capability.

Together, the Real-Time Experts cover all state-of-the-art techniques and offer the right approach for any kind of timing problem or question.

The Real-Time Experts provide a single point of access to partners' leading-edge solutions, directly through one of the partners and globally through a network of distributors in Europe, the USA and Asia/Pacific.

Real-Time Experts: Integrated solutions.

AbsInt provides tools to determine safe runtime bounds at the code level based on precise processor models. Symtvision's solutions facilitate system-level timing design, optimization and verification for integrated control units, communication protocols and networked systems. Gliwa offers runtime measurement and tracing, enabling developers and integrators to debug and verify their software and validate their timing models.

The full potential of these approaches is realized in combination with each other. And it is exactly this combination that is provided by the Real-Time Experts' seamless interfaces between tools.

The Real-Time Experts solutions have been proven in many timing- and safety-critical automotive and aerospace projects. From system-concepts and early testing to timing debugging and verification of functional safety, from software to complete systems – with the Real-Time Experts you master real-time challenges throughout the development cycle.



SymTA/S

Scheduling analysis,
timing design and
virtual integration
for ECUs and networks

TraceAnalyzer

Visualisation and analysis
of timing measurements,
seamless integration
with SymTA/S



T1

Verify and visualise timing
Debug and optimise
Know CPU load
Know execution times

GPSgecko mkII

10Hz GPS to CAN converter

gliwOS

light-weight automotive RTOS
portable within a day



aiT

Proving safe
worst-case
execution
time bounds

StackAnalyzer

Proving the
absence of
stack overflows

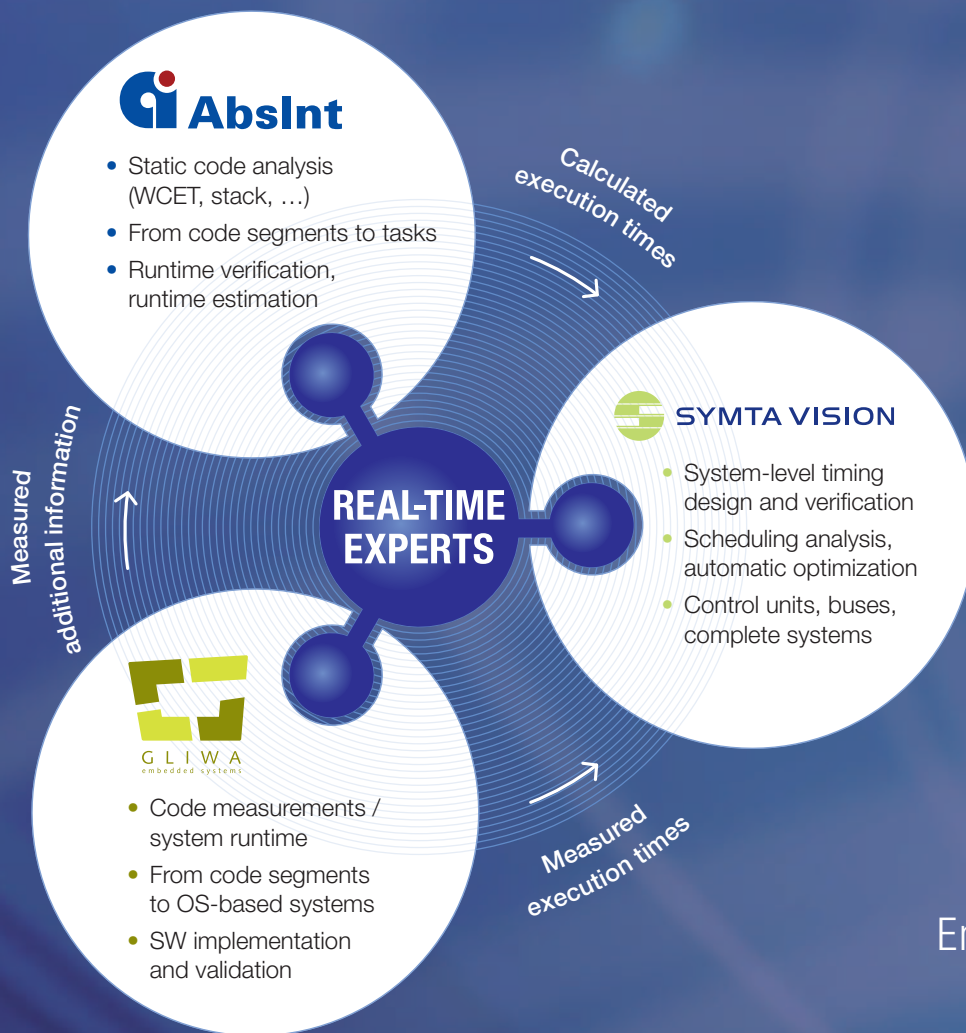
Astrée

Proving the
absence of
runtime errors
in C code

Qualification

DO-178B,
ISO-26262,
EN-50128

Integrated tool chains for real-time systems:



- WCET Analysis
- Stack Analysis
- Run-time Measurement
- Real-time Tracing
- Timing Debugging
- Scheduling Analysis
- End-to-end Timing Analysis
- Real-time Capability
- Safety Verification
- System Optimization

Symtvision's innovative system-level timing design and verification tool suite, **SymTA/S**, helps engineers master system integration from early concepts to final verification. The product analyses and optimises the scheduling of software on electronic control units, messages and signals on buses as well as end-to-end timing in distributed systems. **TraceAnalyzer** is a seamlessly integrated solution for visualising and analysing timing data from both measurements and simulations.

Expertise:
Scheduling analysis,
end-to-end timing analysis,
schedule design,
optimization and verification

Whether in-lab or in-vehicle: The measuring and tracing software **T1** protocols and visualises the timing of functions, runnables, and any code segment. The evaluation and optional supervision is carried out on the ECU in real-time. If required, the results are transmitted to the PC via a hardware interface (e.g. CAN or standard diagnosis).

Expertise:
Runtime-measuring,
-debugging, -verification
and -optimization.
Coaching and Engineering

aiT computes safe upper bounds on the worst-case execution time of tasks precisely taking into account the processor architecture. **TimingExplorer** supports processor and configuration exploration in early phases. **StackAnalyzer** computes safe upper bounds on the maximal stack usage of tasks. **Astrée** proves the absence of runtime errors in C programs.

Expertise:
Static code level analysis,
safe time bounds based on
precise processor models

Real-Time Experts

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