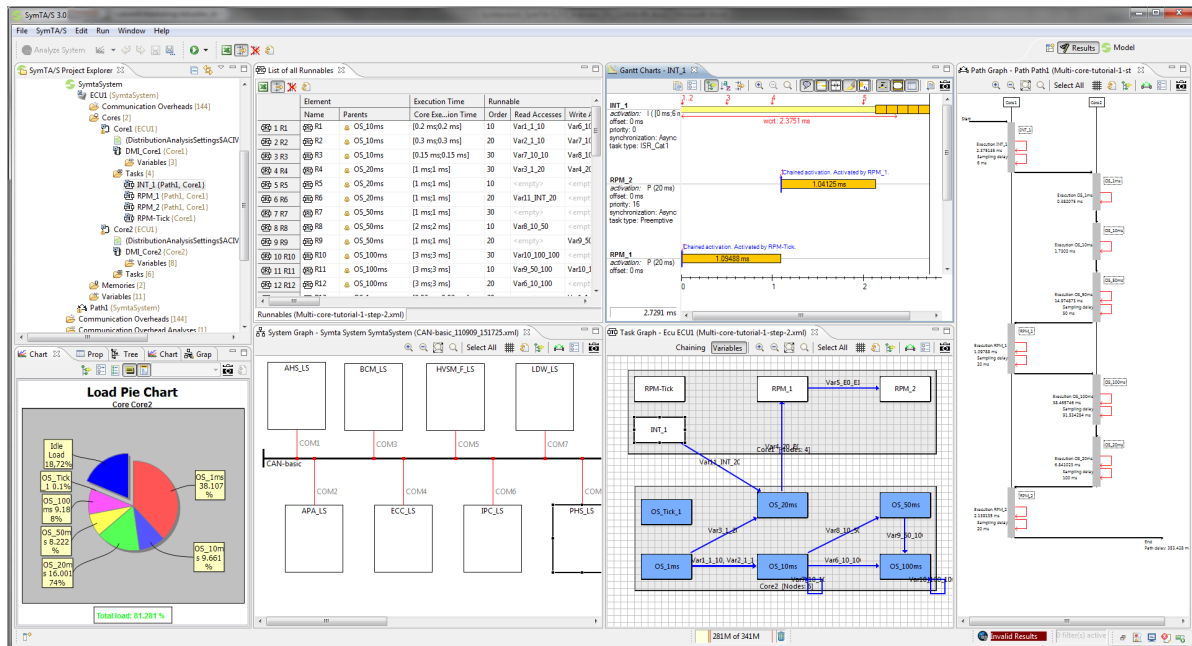


Model-based timing analysis & optimization



SymTA/S is Symtvision's model-based solution for timing design, performance optimization and timing verification. SymTA/S targets mission-, safety- and performance-critical real-time systems in automotive, aerospace and other embedded markets. SymTA/S provides:

- *Worst-Case scheduling analysis*: reliable timing bounds independent of test coverage
- *Distribution analysis*: timing statistics and probability of deadline violations
- *Scenario analysis*: timing analysis based on specific input sequences and existing traces

SymTA/S provides an efficient and consistent timing perspective at the right levels of abstraction for planning, implementation, and verification of control units, networks and distributed real-time systems.

Timing Analysis & Verification

- Response time analysis for software functions and bus transmissions
- End-to-end timing analysis
- Verification against timing constraints (deadlines, budgets, time capacity, ...)
- Automatic corner case identification and verification (Worst case analysis)
- Probability of constraints violation (Distribution analysis)
- Replay and verification of activation patterns taken from traces (Scenario analysis)
- Data Consistency Analysis

Timing Design & Optimization

- Virtual modeling, optimization and visualization of scheduling (Gantt diagrams, sequence charts, load, ...)
- Task and schedule design from a set of functions and timing constraints
- Optimization of hardware architecture and software / communication mapping
- Multi-core partitioning, including memory access optimization
- Resolving performance bottlenecks and hotspots
- Identifying system extensibility

Timing Model

- Hardware architecture: ECUs, CPU-cores (including multi-core), buses, gateways
- Software architecture: tasks, variables, COM layers, paths, Autosar SWCs and Runnables
- Communication architecture: signals, signal groups, frames, frame routes, signal routes, data mappings
- System Environment: clocks, external events, interrupts, traces

Supported Targets

- Bus protocols: CAN, Flexray, TTP, ARINC 664 (AFDX)
- RTOS'es: AUTOSAR OS, ERCOSEK, RTA OSEK, Generic OSEK, ARINC 653
- Generic schedulers: static priority, static order, TDMA

Tool Integration & Productivity

- Seamless integration with TraceAnalyzer through a common data-model and Eclipse-based GUI
- Link to system modeling tools through AUTOSAR, FIBEX, OIL, DBC, XML
- Link to tracing and WCET analysis tools via CSV, XML, Common Timing Format (CTF)
- Flexible import interfaces support custom file formats
- Model consistency & completeness checks
- Report generation to PDF & HTML
- Fully scriptable in Python
- Remote control via SOAP API
- Direct link to Excel® via clipboard

SymTA/S Products

Product / Options	Automotive	Aerospace
SymTA/S ECU	AUTOSAR OS, ERCOSEK, RTA OSEK, Generic OSEK	ARINC-653 IMA
SymTA/S Network	CAN	ARINC-664 AFDX
SymTA/S System	CAN, AUTOSAR OS, ERCOSEK, RTA OSEK, Generic OSEK	ARINC-653 IMA, ARINC-664 AFDX
Optional Flexray Library	Flexray bus analysis support	
Optional Multi-core Library	Multi-core analysis support	
Optional Gateway Library	Gateway analysis support for Black Box and detailed Gateway models	
Optional CAN Library	Already integrated in SymTA/S Network or SymTA/S System	CAN bus analysis support

System Requirements

	minimum	recommended
OS Platforms	Windows® XP or newer version (32 or 64 bit), Linux 64 bit	Windows 7, 64 bit
CPU	2GHz single core	2,5 GHz Dual Core >2 MB L2-Cache
RAM	1 GB	> 4 GB
Disk Space	400 MB	> 1 GB
Peripheral	1 USB port for dongle license	> 1 USB port
Protocol	none	Network adapter with TCP/IP for remote control
Display	1024x768 pixel, 32 bit color depth	1920x1080 pixel, 32 bit color depth

SymtavisioN – Great Timing