RTaW
RealTime-at-Work

PEGaSE

Recent Highlights and 2026 Roadmap

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Purpose

- Summarize recent product updates
- Present short-term roadmap

RTaW-Pegase™ Modules

ETHERNET TSN *GUI, command-line or JAVA API*

- **Modelling, visualization and design variants**
- **Any physical layer incl. T1S**
- **Simulation & worst-case analysis**: 802.1Q, CBS, TAS, preemption, TCP, UDP, TFTP, TTE, CB, DRR, T1S, AS-2020, ATS, PSFP, SOME/IP (TP), DDS
- **Automated configuration**: (redundant) routing, 802.1Q (priorities), CBS (idle slopes), TAS (schedule), T1S (schedule), preemption, ATS, PSFP (traffic policer), combined QoS mechanisms
- **What-if analysis**: scale load, migration from CAN (FD) to T1S
- **.arxml import**

CAN / CAN FD / CAN XL / J1939

- **Simulation & worst-case analysis**
- **Gatewaying** CAN – CAN, CAN – Ethernet
- **Automated configuration**: allocation of IDs & offsets
- **Traffic models**: periodic, sporadic, bursts, diagnostics, segmentation, event-triggered
- **What-if analysis**: migration to CAN FD & CAN 2.0B, scale load
- **.dbc and .arxml import**

SOFTWARE-DEFINED X

- **Hypervisors and RTOS support** (e.g., Autosar classic)
- **Task scheduling**: FPS, NPFPS, schedule tables
- **End-to end delays**: sensors → CPU → network(s) → CPU(s) → actuators
- **Simulation, worst-case analysis, Gantt charts**
- **.arxml import**

TSN GENERATIVE DESIGN

- Zero-Config TSN ®
- Topology Stress Test ®
- Topology Optimizer®

TRACE-INSPECTOR

- Controller-Area Network
- Switched Ethernet and T1S

TSN HW DEPLOYMENT

- IEEE/IETF compliant YANG models
- Deployment over Netconf
- TSN devices characteristics import

AI DOCUMENTATION ASSISTANT: Answers user questions about Pegase and its documentation

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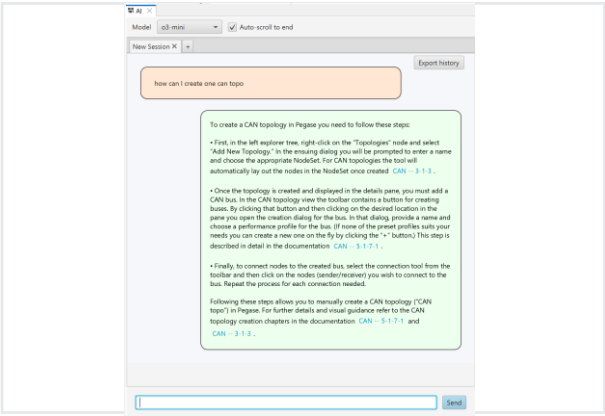
User-Experience

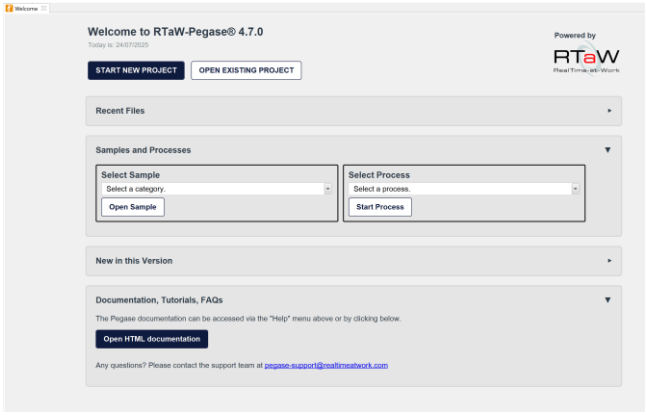
- UX improvement focused on speed and accessibility of features

AI documentation assistant (v4.8)



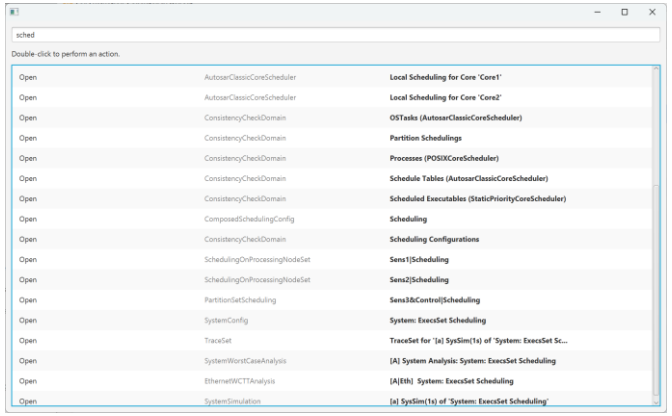
- Ask questions inside the tool
- Step-by-step guidance and links to docs
- Reduces onboarding and "how do I…?" time

Welcome page (v4.7)



- Quick access to recent models and samples
- Release notes and help in one place
- Clear support contact entry point

Search everywhere (v4.7)



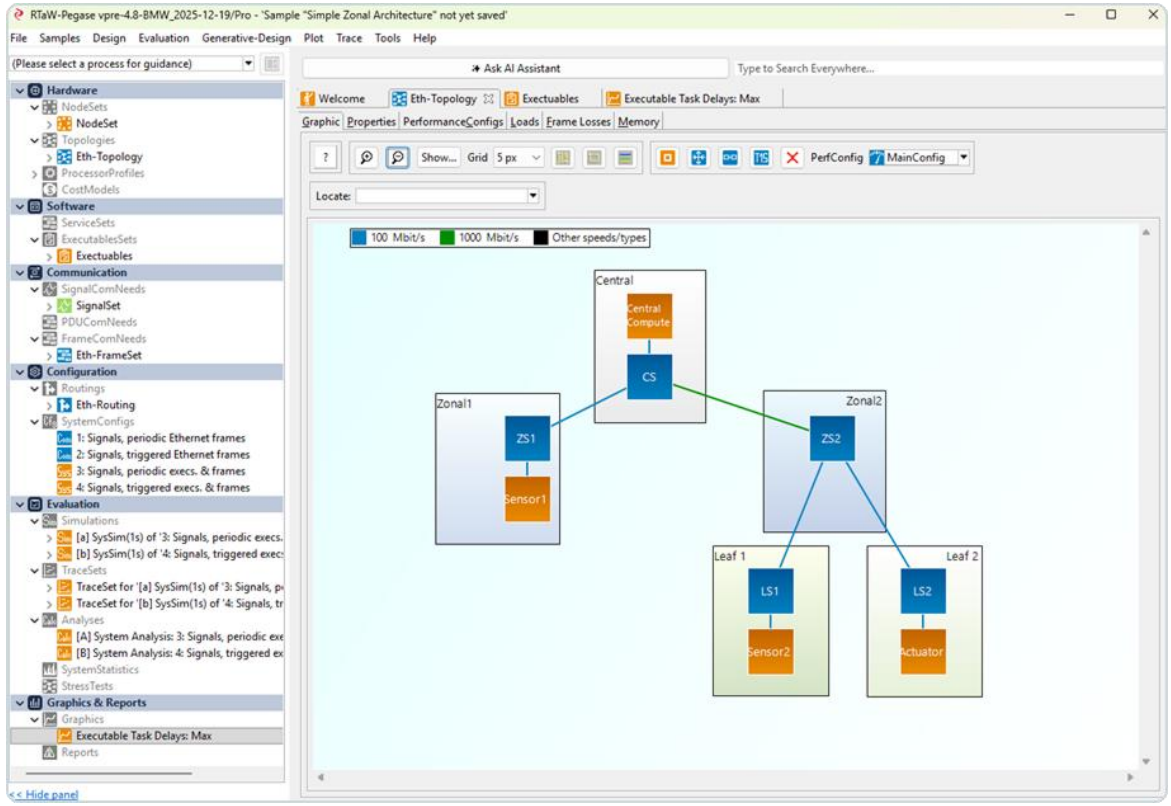
- Shift-Shift / Ctrl-F global search
- Jump to any matching entity
- Supports large models

User-Experience

- UX improvement focused on speed and accessibility of features

Project Tree Redesign (v4.8)

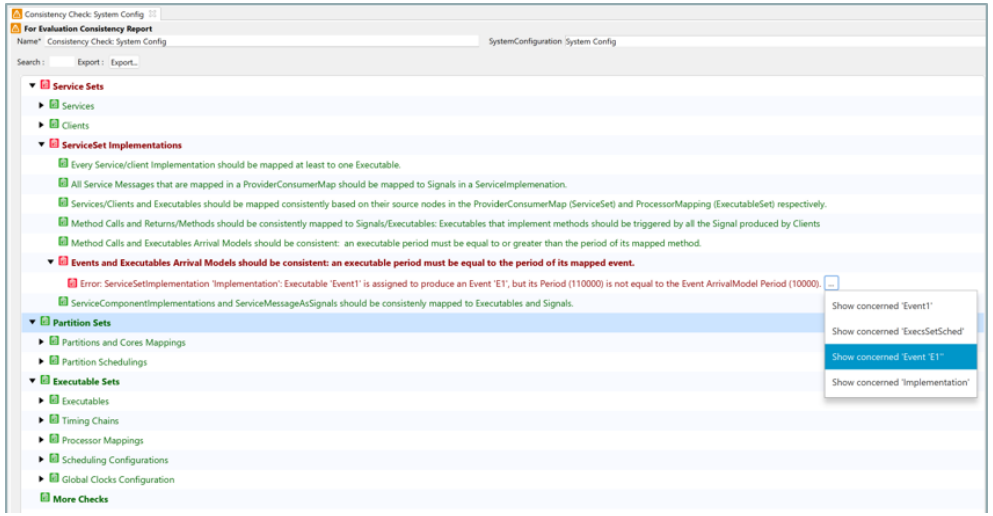
- Reorganized the project tree into clear categories aligned with engineering workflow:
  - Hardware,
  - Application: software, services
  - Communication: signals, PDUs, frames, flows
  - Configuration
  - Evaluation,
  - Reporting
- Faster navigation and match how users build and validate systems.



Pre- and Post-Evaluation Reporting

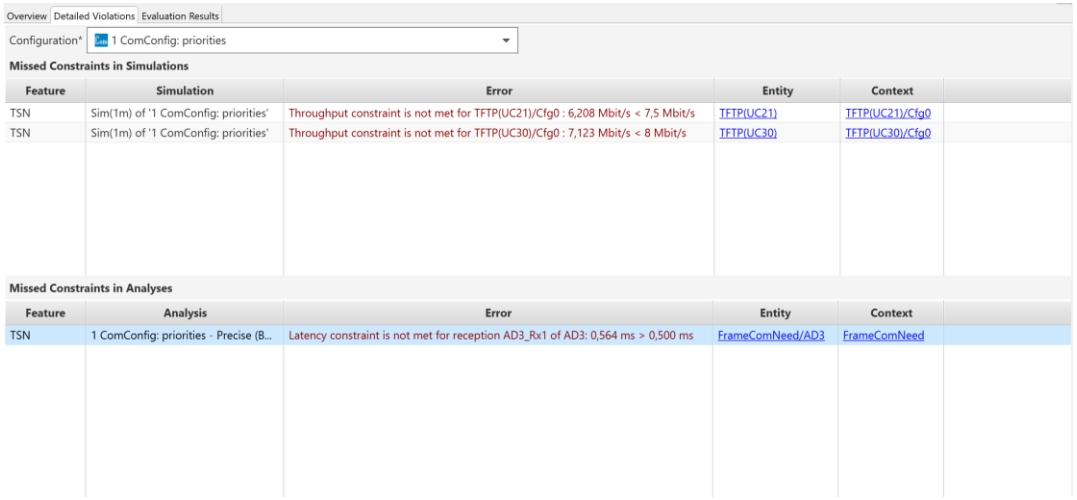
- Improved reports help validate configurations, identify root causes, and navigate directly to affected entities.

Pre-evaluation report (v4.7)



- Checks modeling constraints for completeness/correctness
- Highlights errors with explanatory messages
- One-click access to the issue context

Post-evaluation report (v4.7)

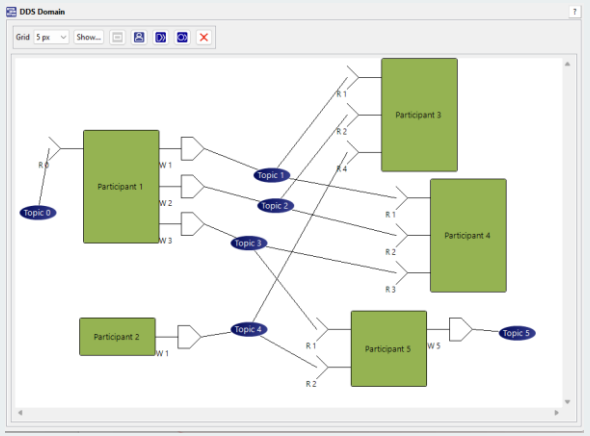


- Overview + Violations + Evaluation Results tabs
- Centralized list of issues with context and links
- Quick access to charts and generated results

Ethernet TSN

- Improved ARXML support and better PREEvision™ interoperability (export of TSN parameters to ARXML)
- MACsec security support (802.1AE)
- Stream ID support for FRER (802.1CB) and PSFP (802.1Qci)
- Automated configuration for FRER replication and PSFP traffic policing
- Improved DDS™ over TSN workflow, including DDS-TSN XML import *(ETA: May 2026)*
- Full T1S support, including automated migration from CAN

DDS Domain view in RTaW-Pegase



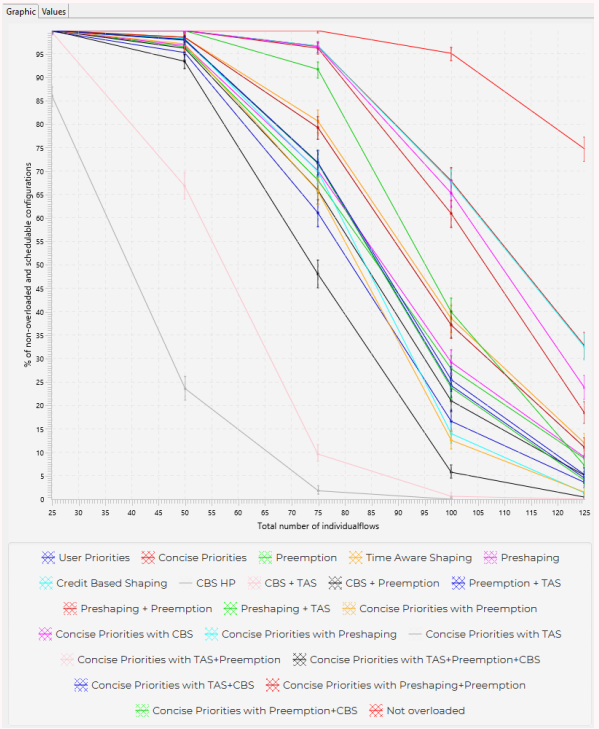
Customer impact

- Less manual TSN configuration with fewer integration errors
- More comprehensive TSN feature coverage (security, resiliency, policing)
- Better toolchain integration through improved ARXML/PREEvision and DDS workflows

Ethernet Generative Design

- TST: Major User Experience improvements (usability)
- TST: Clearer guidance with richer documentation
- TST: New ATS based scheduling options, incl. ATS+TAS
- TST + ZCT: Additional algorithm-driven priority assignments to improve configuration quality

TSN mechanisms: capability to satisfy timing constraints when load increases



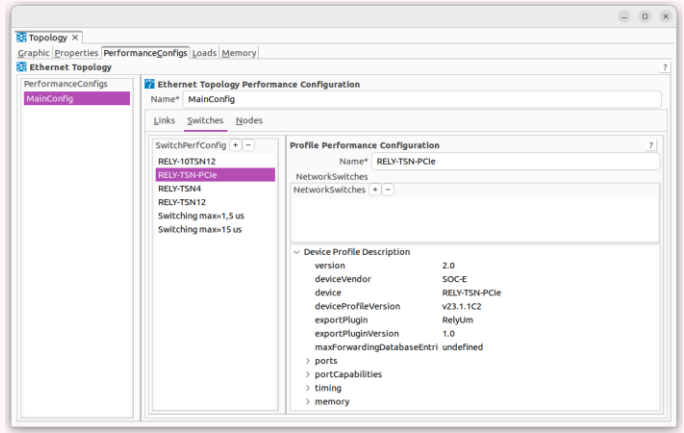
Customer impact

- Smoother learning curve (clearer docs, improved UX).
- Faster design iterations (improved workflows)
- Higher-quality configurations with less manual tuning

TSN HW Deployment

- Broader built-in device/product coverage
- New device profile description language to support HW heterogeneity : internal + PHY timings, TSN capabilities, memory constraints
- Up-to-date YANG model export compliant with the latest IEEE standards

Pegase Device Profile Editor



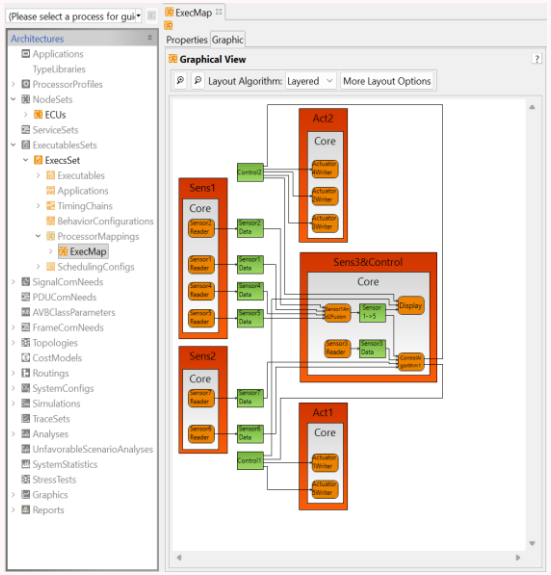
Customer impact

- Generate TSN configurations that are valid for the target hardware
- Avoid frame losses caused by memory/buffer overflows
- Streamline deployment from model to device, reducing manual steps and integration risk

Software-Defined X

- SOME/IP service-induced load evaluation (v4.8)
- POSIX scheduling support (SCHED_*) as used in AUTOSAR Adaptive
- Graphical visualization of task-to-processor mapping
- Automated task-to-processor mapping and scheduling configuration
- Execution traces showing CPU spare capacity (idle time)
- ARXML ECU extract import: runnables, OsTasks, schedules, timing chains (ETA: Mar 2026)

Task-to-Processor Mapping View



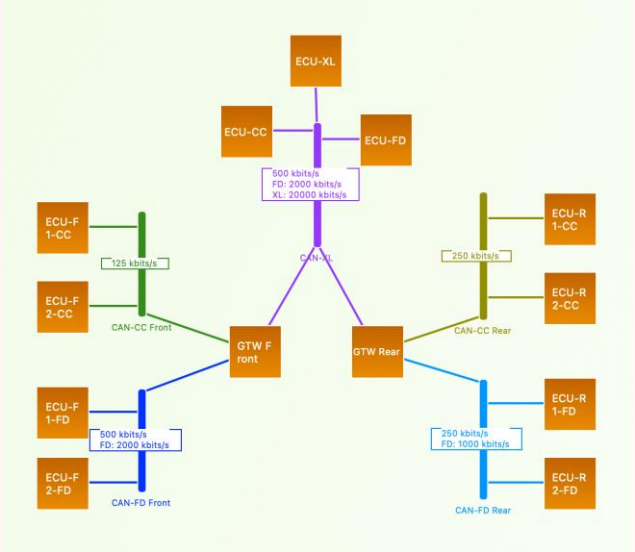
Customer impact

- Earlier performance validation by quantifying SOME/IP–induced CPU/network load before integration.
- Richer scheduling specifications to support modern, adaptive architectures.
- More automation end-to-end: import ECU extracts, auto-map tasks to CPUs, and generate scheduling configurations with minimal manual effort.

CAN (FD, XL)

- Support for networks with mixed CAN-CC, CAN FD and CAN XL interfaces
- Additional statistics: busy periods, reception jitters
- J1939 Support *(ETA: Mar 2026)*

Mixed CAN-CC, FD and XL network



Customer impact

- Accurate analysis of mixed CAN networks (CC/FD/XL) without simplifying assumptions.
- Additional capabilities to validate timing behavior
- Expanded functional coverage with upcoming J1939 support, reducing toolchain fragmentation.

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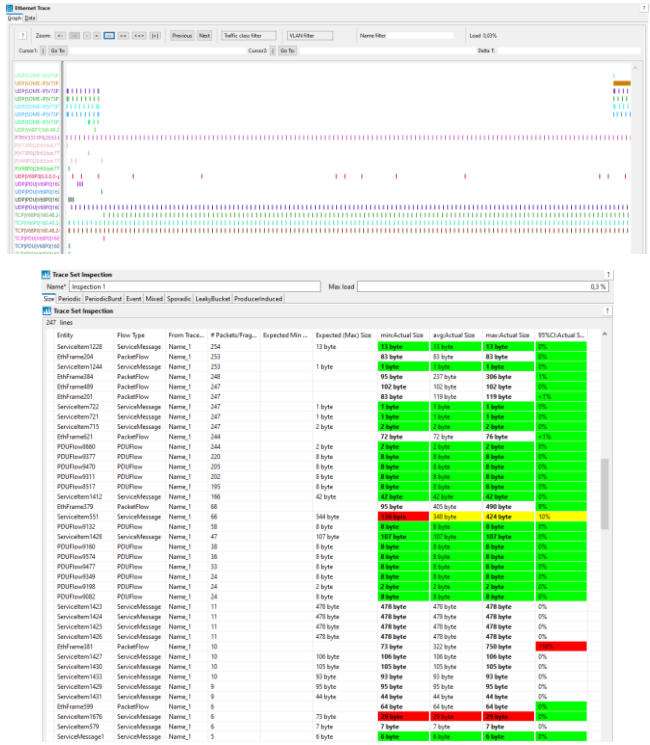
Trace-Inspector

- Import and inspect multiple traces simultaneously
- Improved UX for easy navigation between model, trace view and inspection results
- CAN: Improved analysis for mixed periodic / event-driven frames
- ETH:
  - Import bidirectional recordings
  - Improved trace import report and inspection tables
  - Update the model from traces (services, PDUs, frames) for more realistic simulations

Trace inspection: Gantt chart and inspection results table

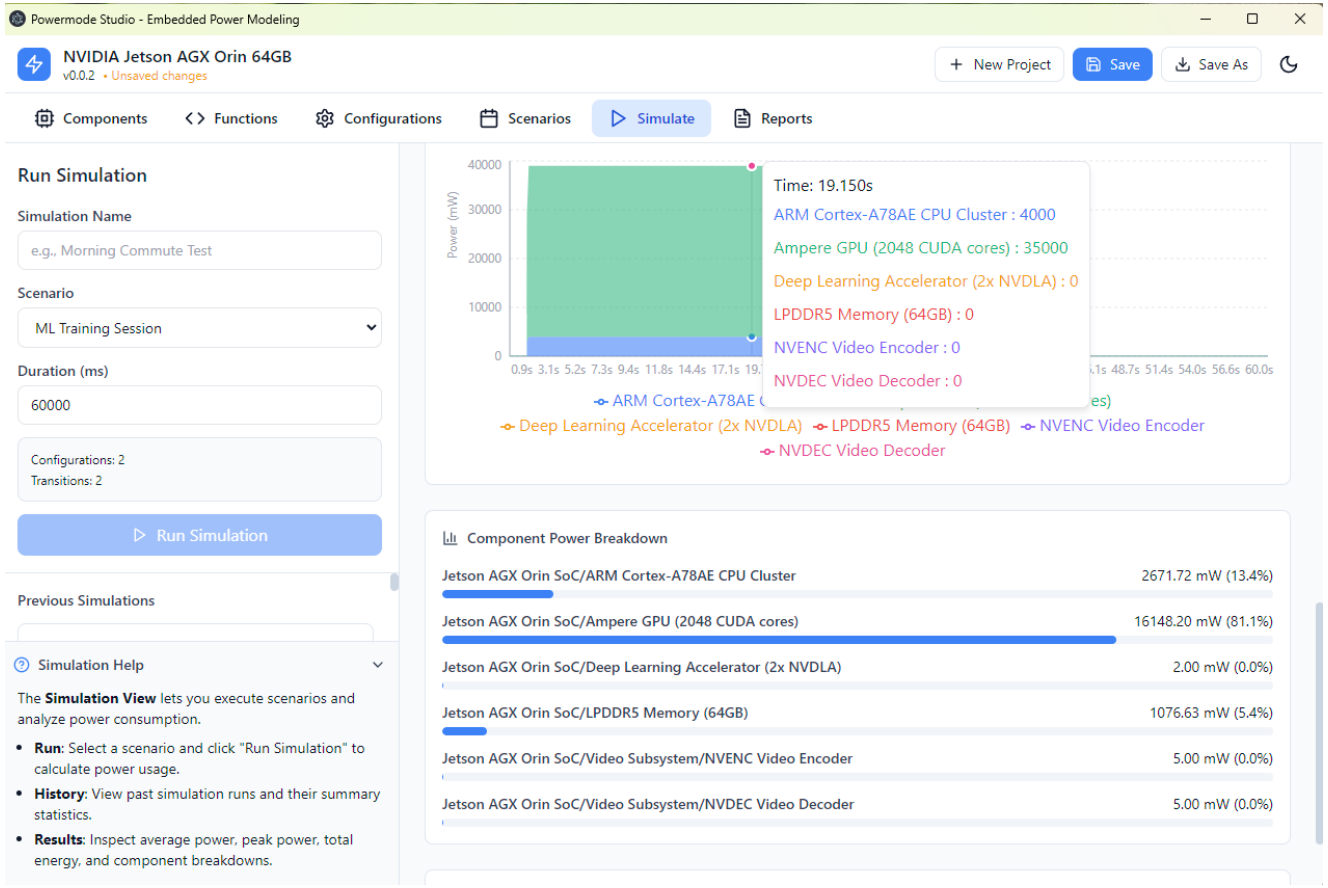


Customer impact

- Inspect traces at a glance to validate both content and timing behavior.
- Detect non-conformances from the implementation and incorrect modeling assumptions.
- Enrich models from traces to reproduce realistic traffic patterns and improve simulation fidelity.

New tool: PowerMode Studio

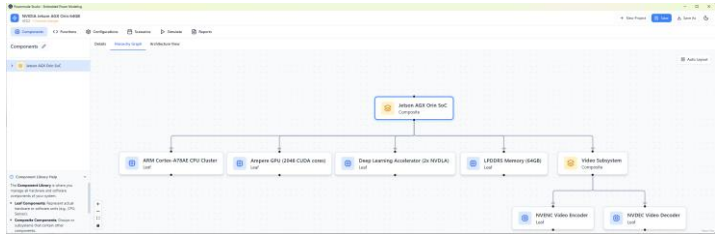
- Model operating states and workload scenarios for compute units and networks, simulate and report peak/average power breakdowns for representative systems.



Key capabilities

- Component library for HW/SW parts
- Operating states (Sleep/Active/Perf)
- Scenario editor (e.g., inference, video)
- Simulation and reports
- Support microcontrollers and SoCs (Nvidia, QualComm)
- Extension to system-level power modeling, including network power

Example: NVIDIA ORIN



Recent Publications

- "PSFP in TSN Networks: Insights into Some Practical Limitations" — ERTS 2026
- "Overcoming QoS Challenges in a Full Automotive Ethernet Architecture" — IEEE-SA Ethernet & IP @ Automotive Technology Day 2025 — with Renault / Ampere
- "Automotive System Requirements on Traffic Shaping" — TSN/A 2024 — with BMW
- "The Future of In-Vehicle Electronic Architecture Design: Entering the Centaur Era" — China SAE Congress 2024
- "DDS over TSN: configuring TSN to meet DDS level QoSes" — Automotive Ethernet Congress 2024 — with RTI
- "ATS vs CBS shaper differences" — TSN/A 2023 — with Ethernovia

Next Steps

- Interested in any of these topics? Schedule a demo focused on the features most relevant to you.
- Missing important features? We welcome your input to help define our roadmap and priorities.

CONTACTS

GENERAL ENQUIRIES
REQUEST AN RTAW-PEGASE DEMO / PRICING

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CHINA ENQUIRIES

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POWERMODE STUDIO DEMO

TechDemo@realtimeatwork.com

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Enabling Correctness by Design

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