



QNX + Qorix Performance

Real-Time Adaptive Cruise Control, From Simulink Model to Production Hardware

Together, BlackBerry QNX and Qorix Performance, our commercial distribution of Eclipse S-CORE, bring a real-time Adaptive Cruise Control demonstrator to life on a Qualcomm Snapdragon Ride SX 4.0 (SA8650P), running Eclipse S-CORE v0.9, the project's latest release, with MathWorks RoadRunner simulating the live driving scene.

The Challenge

Bringing a control algorithm from the simulation environment to a real, deterministic automotive ECU usually means rework, re-implementation, and a loss of traceability between model and running code. OEMs and Tier-1 suppliers need a credible path from model-based design to production-grade, real-time software, built on a platform that keeps pace with the latest open source developments rather than lagging behind them.

The Solution

Qorix Performance, our commercial distribution of Eclipse S-CORE, provides the deterministic, real-time runtime for an Adaptive Cruise Control (ACC) function, running on BlackBerry QNX 8 on a Qualcomm Snapdragon Ride SX 4.0 (SA8650P). Here, it runs on Eclipse S-CORE v0.9, the project's most recent release. The ACC algorithm is designed in MathWorks Simulink, and the C code generated from that model runs unchanged on the ECU. MathWorks RoadRunner simulates a 3D town scene on a connected PC, and the ECU drives the simulated "ego" vehicle live, in a real-time closed loop over Ethernet.

Capabilities

- ▶ Real automotive ACC software running on Eclipse S-CORE v0.9, on a production automotive chip and on QNX
- ▶ Fixed Execution Order (FEO) running software steps in a fixed sequence every 5 milliseconds
- ▶ LoLa passing data between software components through shared memory, with no copying
- ▶ Direct path from Simulink model to generated C code, running unchanged on the ECU
- ▶ Real-time closed-loop operation with a connected simulation environment over Ethernet
- ▶ Separate programs for communication, control, and monitoring, coordinated in a fixed, predictable order

Why it matters

- ▶ Shows that the latest Eclipse S-CORE release is already powering real automotive software on production hardware, not just a roadmap promise
- ▶ Reduces the gap between model-based design and deterministic, production-grade ECU software
- ▶ Gives OEMs and Tier-1 suppliers a realistic, de-risked path from simulation to real-time vehicle control
- ▶ Demonstrates an integrated ecosystem spanning silicon, operating system, tooling, and middleware, delivered through Qorix as official distributor of Eclipse S-CORE

▶▶ A live demonstration that Eclipse S-CORE's newest release, v0.9, already runs real, deterministic automotive software, delivered by the safety-aligned middleware of Qorix Performance.

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