



Red Hat + Qorix Performance. Crafted from S-CORE.

Mixed-Criticality Execution on Automotive Linux

Who this is for

OEMs and Tier-1 suppliers evaluating the role of Linux in SDV architectures – and exploring how mixed-criticality workloads can be executed safely, predictably and program-ready on open-source-aligned vehicle platforms.

What the demo shows

This demonstrator is built on the Qorix Performance Stack – a safety-aligned runtime platform that provides deterministic execution, communication and functional separation for mixed-criticality workloads on Linux.

- ▶ Mixed-criticality workload execution on Qorix Performance & the Red Hat In-Vehicle OS
- ▶ Deterministic scheduling and real-time behavior enabled by the Qorix Performance Stack
- ▶ Clear functional separation across partitions for safety-relevant and non-safety workloads
- ▶ Real-time behavior on a Linux-based SDV platform
- ▶ Integration of simulation workflows (ACC + driving scenarios)
- ▶ Foundation for future containerized deployments of automotive workloads

Why it matters

Linux plays an increasingly important role in SDV architectures – but only becomes relevant for mixed-criticality scenarios when supported by a deterministic runtime layer and well-defined functional separation.

This demonstrator shows how the Red Hat In-Vehicle OS and the Qorix Performance Stack complement each other:

- ▶ The In-Vehicle OS provides openness, developer-friendly workflows and a modern automotive Linux foundation
- ▶ Qorix Performance adds the safety-aligned runtime layer - deterministic execution, safe communication paths and domain separation
- ▶ The combined setup offers a clear path for OEMs exploring open-source-based SDV stacks

In essence: By presenting this setup at CES, Red Hat highlights a realistic approach for integrating Linux into program-relevant SDV systems.

▶ **A credible path to using Linux in mixed-criticality SDV environments – powered by the safety-aligned middleware of Qorix Performance.**

