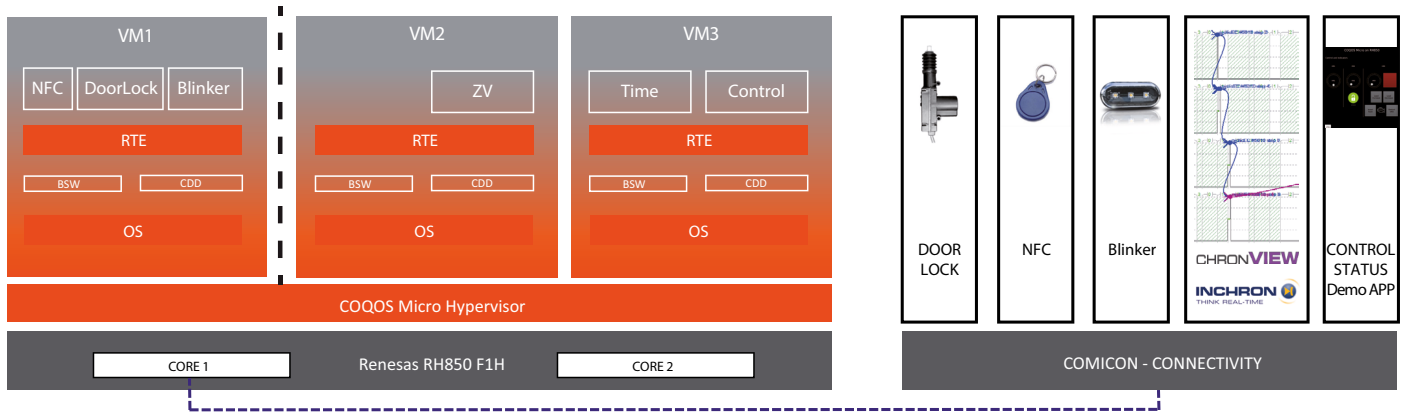


# Domain Controller based on COQOS Micro SDK

Multi AUTOSAR on Renesas RH850



## BENEFITS

- **COQOS Micro SDK virtualization solution showing freedom of interference by using a real-world example from the automotive body control domain.**
- **COQOS Micro SDK provides virtualization for automotive microcontrollers without MMU.**
- **Integration of AUTOSAR functions on a single device that**
  - have different requirements on real-time behavior
  - have different safety requirements (ASIL)
  - are supplied by different vendors (3rd party SWC ZV).
- **Independent software update of virtual machines.**

## KEY DATA

### Hardware

- Renesas RH850/F1H - Dual Core

### Software

- COQOS Micro SDK
- AUTOSAR OS (4.2.1)
- RTE, integrated third-party AUTOSAR SWC (ZV)
- Control/Status (COMICO)
- Events (COMIEV)

## DEMONSTRATOR FEATURES

- **Classic AUTOSAR virtualized on a microcontroller**  
Three virtual machines (VM1, VM2, VM3) implemented on top of MPU-based COQOS Micro SDK. I/O for sensors, actuators and host communication in VM1, Door-Lock function in VM2, Blinker and overload-/fault-function in VM3.
- **Shared IO**  
Demonstrating shared I/O. Device access is exclusively assigned to specific VMs. Propagation of dedicated signals across VM boundaries utilizing shared BSW concepts.
- **Function isolation by separation**  
Any failure or corruption of VM3 will not affect VM1 or VM2. The door-lock function is not impacted by failure of VM3.
- **Multicore support**  
COQOS Micro SDK supports multicore platforms, VM1 is on core 1 and VM2 and VM3 are on core 2.
- **chronVIEW Live by Inchron**  
On the fly real-time analysis of event-chains with INCHRON Tool.
- **Fault Injection, overload simulation**  
Demonstrating freedom of interference with fault injection and overload scenarios.