

Virtualization of an Infotainment System

Development of a **hypervisor** in order to execute several operating systems for (future) virtual infotainment systems

Customer requirements

The aim of the project was to create a system that allows the operation of several operating systems on a multicore ARM platform. This system consolidates the various domains of the cockpit (cluster and infotainment) on one SoC (System on a Chip) with the help of a number of different operating systems. As guest operating systems, in addition to Linux, Android and QNX should also be implementable.

The most important requirements for this project were a minimal overhead, a fixed connection of the operating systems to one CPU, the assignment of hardware to any desired operating systems and a small code basis.



comlet solution

The implemented solution was a bare-metal hypervisor that configures the system at the booting stage and starts the operating systems. A 1:1 assignment of operating system to CPU was chosen. In order to keep the overhead as low as possible a virtualization of the hardware was kept to a bare minimum and the hardware used was transferred directly to the corresponding operating system.

The isolation of the operating systems was realized through the hardware support of the Cortex A15 processors for multi OS.

The final system was presented as a prototype on an automotive platform at the 65th International Automobile Exhibition and Motor Show (IAA) in Frankfurt.

Technology used

GIT, Linux, U-Boot, ARM-Assembler, C, ARM Cortex-A15 MPCore hardware virtualization

