ELMAR

REAL-TIME FRAMEWORK
developed by kumkeo

THE VERSATILE PLATFORM FOR REAL-TIME APPLICATIONS

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ELMAR – The versatile platform for real-time applications

Cut the number of elctronic control units with ELMAR. The ELMAR framework is a real-time architecture for AMD® Zynq® UltraScale+TM MPSoCs that enables the operation of low latency regulating algorithms (optionally on the basis of Simulink®) parallel to embedded Linux distribution. A lightweight hypervisor ensures a distinct separation between Linux management and control on the basis of an RTOS. Linux offers a web server, parameter administration, a firmware update mechanism and further features that simplify field administration of the board. In-house developed inter-core communication (ICC) provides synchronized communication between the ARM® cores for real-time applications.

ELMAR
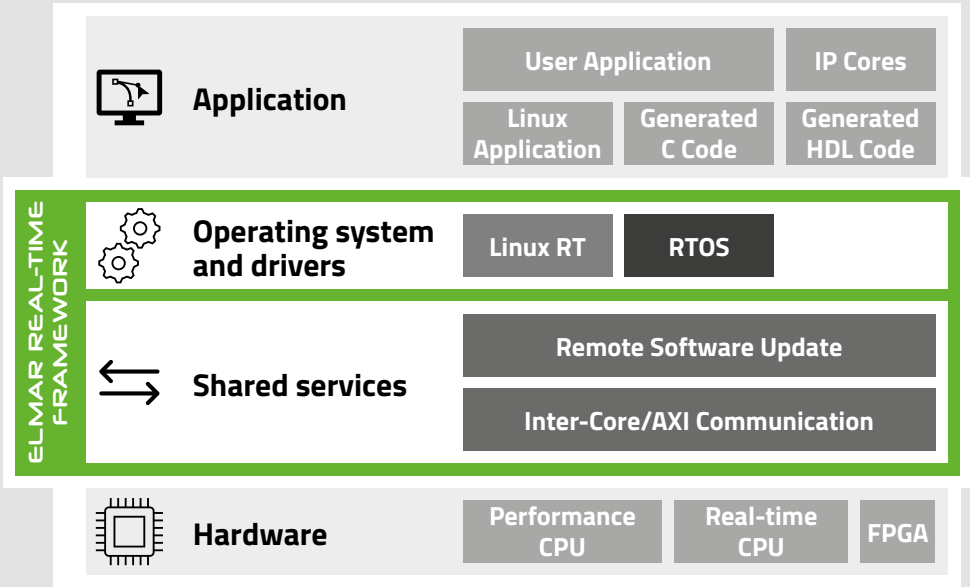**REAL-TIME FRAMEWORK**
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Top features

Powerful, embedded control platform

Flexible framework for control applications

Designed for lowest latencies and hard real-time conditions

Architecture

ELMAR REAL-TIME FRAMEWORK					
Application	User Application			IP Cores	
	Linux Application	Generated C Code		Generated HDL Code	
Operating system and drivers	Linux RT	RTOS			
Shared services	Remote Software Update				
	Inter-Core/AXI Communication				
Hardware	Performance CPU	Real-time CPU		FPGA	

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Overview of specific features

INTER-CORE COMMUNICATION MECHANISMUS

VIRTUAL NETWORK AND PRIORITIZATION

PARAMETER MANAGER

HW AND SW WATCHDOG

CENTRALIZED LOGGING AND EVENT LOGGING

REMOTE SOFTWARE UPDATE

SECURE BOOT

WEBSERVER AND IoT SUPPORT

SIMULINK®TARGET

SCALABLE

Performance

By applying our kernel patch, which has been specially developed for this platform, we can guarantee a stable 10 kHz frequency on the real-time cores. This is measured using a complex industrial Simulink® control algorithm.

time needed for real-time task /µs, no linux patch 15h test no stress

Without kumkeo Kernel-Patch

time needed for real-time task /µs, linux patch 15h test

With kumkeo Kernel-Patch
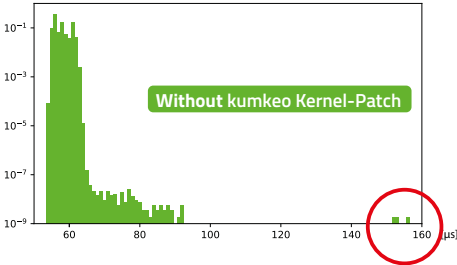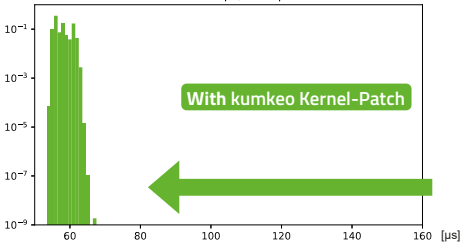
Benefits

TURNKEY FRAME-WORK FOR INTEGRATING AN APPLICATION

COMBINES THE BENEFITS OF BOTH ENVIRONMENTS (LINUX AND RTOS)

PREQUALIFIED AND DEPLOYABLE EVALUATION BOARD

FRAMEWORK MAINTENANCE CARRIED OUT BY kumkeo

FOCUS ON CORE COMPETENCIES

More information about ELMAR

KUMKEO

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