MATLAB® Simulink® – Embedded Coder Library for XMC MCUs

The XMC MATLAB® Simulink® Embedded Coder Library provides support for code generation of all XMC microcontroller families. The XMC Embedded Coder Library enables the automatic code generation of your software algorithm, optimized for XMC MCUs, together with system and peripheral initialization.

It contains a comprehensive set of peripheral library blocks, such as Capture and Compare Unit 4/8 (CCU4, CCU8), Analog-to-Digital Converter (VADC), Position Interface Unit (POSIF), Brightness Color Control Unit (BCCU), etc. The peripheral Simulink Library is available for all XMC MCUs. It supports code generation of system initialization for any XMC microcontroller as well direct compilation and linking.

Specific library blocks for MATH Co-Processor (CORDIC) allow the user to optimize the algorithm for the XMC1300 MCU series. System library blocks such as Hardware Interrupt, enable the user to configure, tailor and optimize all the interrupt request routines needed for the application.
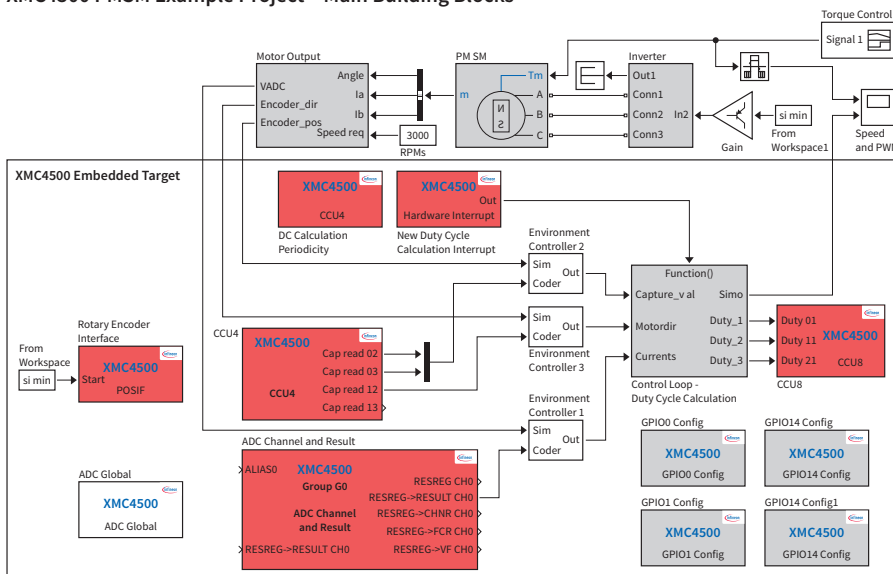
Application

- Model-based design
- Motor control
- Digital power conversion
- Real-time control system

Features

- Embedded code generation for XMC microcontroller family
- Support a large peripheral collection
- Code generation for peripheral initialization
- Code generation for system startup
- Code generation for CORDIC
- Optimized code
- Easy integration with DAVE™

XMC4500 PMSM Example Project – Main Building Blocks

www.infineon.com/matlab

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With the Infineon Embedded Coder Library for XMC microcontrollers, the customers are able to introduce an easy model-based design flow, for any type of applications.

The generated code is optimized for all the XMC microcontrollers, and includes complete peripheral initialization and support for multiple interrupt routines. The code optimization uses CMSIS library from ARM® and the CORDIC library from Infineon.

Advanced functionalities such as start-up sequence configuration for system and peripherals, enables an easy manipulation of the code generation process. At the same time the user can also identify all of the resources upon code generation by configuring a specific resource/handler name for all the library blocks.

The XMC Embedded Coder Library from Infineon, uses the new XMC Lib. A complete set of low level peripheral drivers integrated in DAVE™ and third party tools. The Simulink® generated code can be easily imported in DAVE™ or other third party tools.

Benefits

- Fast model-based development for real-time applications
- Optimized XMC MCU code generation from a Simulink® project (including CORDIC instruction set)
- Easy porting of generated code into DAVE™ or other third party tools
- Complete peripheral initialization from Simulink® environment
- XMC MCU application library creation from MATLAB® Simulink®

Details

- www.infineon.com/dave
- www.infineon.com/xmc
- www.infineon.com/matlab

Product Summary

Type	Description
XMC MATLAB® Simulink® Embedded Coder Library	MATLAB® Simulink® library for the XMC microcontrollers: – Includes system initialization libraries – Includes peripheral initialization libraries – Includes code optimization libraries (CORDIC; CMSIS is a hardware support package from MathWorks®) – Includes support for all the XMC microcontrollers – Includes advanced functions such as initialization sequence block and resource name configurator – Includes compilation/linking support (via the GNU gcc/g++)
XMC Evaluation Kits and Boards	Give it a try, use free of charge DAVE™ with one of our affordable evaluation kits and boards: – XMC 2 Go: KIT_XMC_2GO_XMC1100_V1 – XMC1300 Boot Kit (enabling CORDIC): KIT_XMC13_BOOT_001 – XMC4500 Relax Kit: KIT_XMC45_RELAX_V1 – XMC1000 Motor Control Application Kit: KIT_XMC1x_AK_Motor_001