Real Time Control Embedded Software Motor Control and Power Conversion Libraries
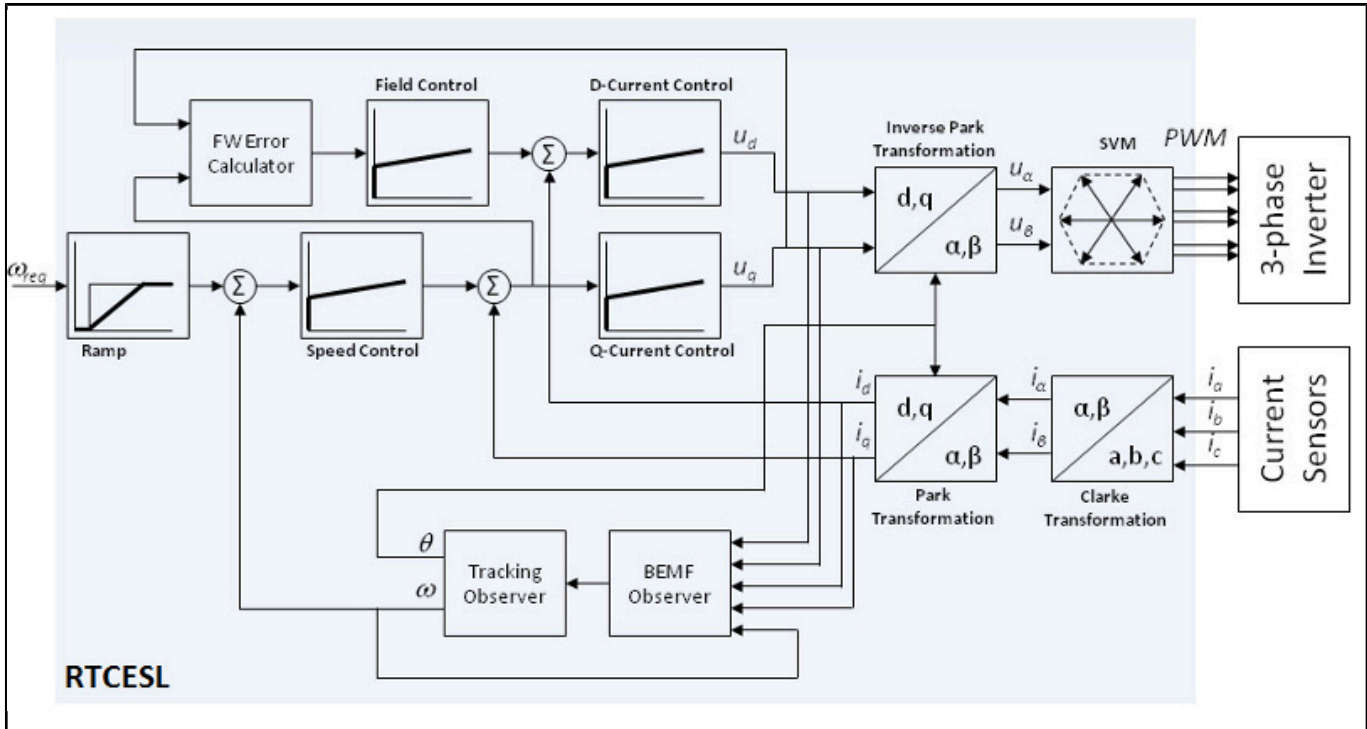
RTCESL

Last Updated: Mar 16, 2023

This NXP real-time control embedded software libraries – RTCESL (former Freescale embedded software libraries – FSLESL) is a group of algorithms ranging from basic mathematics operations to advanced transformations and observers, which can be easily incorporated into complex real-time control applications, and used in our motor control reference designs. The algorithms help to speed development and ease of use in applications that require intensive math computation and control such as advanced high-efficiency motor control and power conversion.

The libraries are highly optimized, tested on our hardware and are easy to use as they are implemented with a C-callable function interface. If the device has a hardware accelerators for specific calculations like Memory-Mapped Divide and Square Root Module (MMDVSQ) in some Cortex® M0+ core based devices or PowerQuad (PQ) hardware accelerator in some Cortex® M33 core based devices the RTCESL can process some algorithms using such hardware accelerators to provide quicker calculations. The functions have been tested against NXP's reference models in MATLAB.

The libraries are currently available for the Kinetis® Arm® Cortex® M0+, M4, M7, M33 and DSCs with the DSP56800E(X) core, with the introduction of a universal API across all our libraries we have made available a tool to the help convert your API's. To quickly move from the API that you used in either FSLESL 3.0 or MMCLIB to the new universal API used in latest RTCESL release use API Translator. This simple tool will help migrate your code by converting your old API to the new version. Available now in the Downloads tab.

Embedded Software and Motor Control Libraries Block Diagram Block Diagram

RTCESL-BD Block Diagram
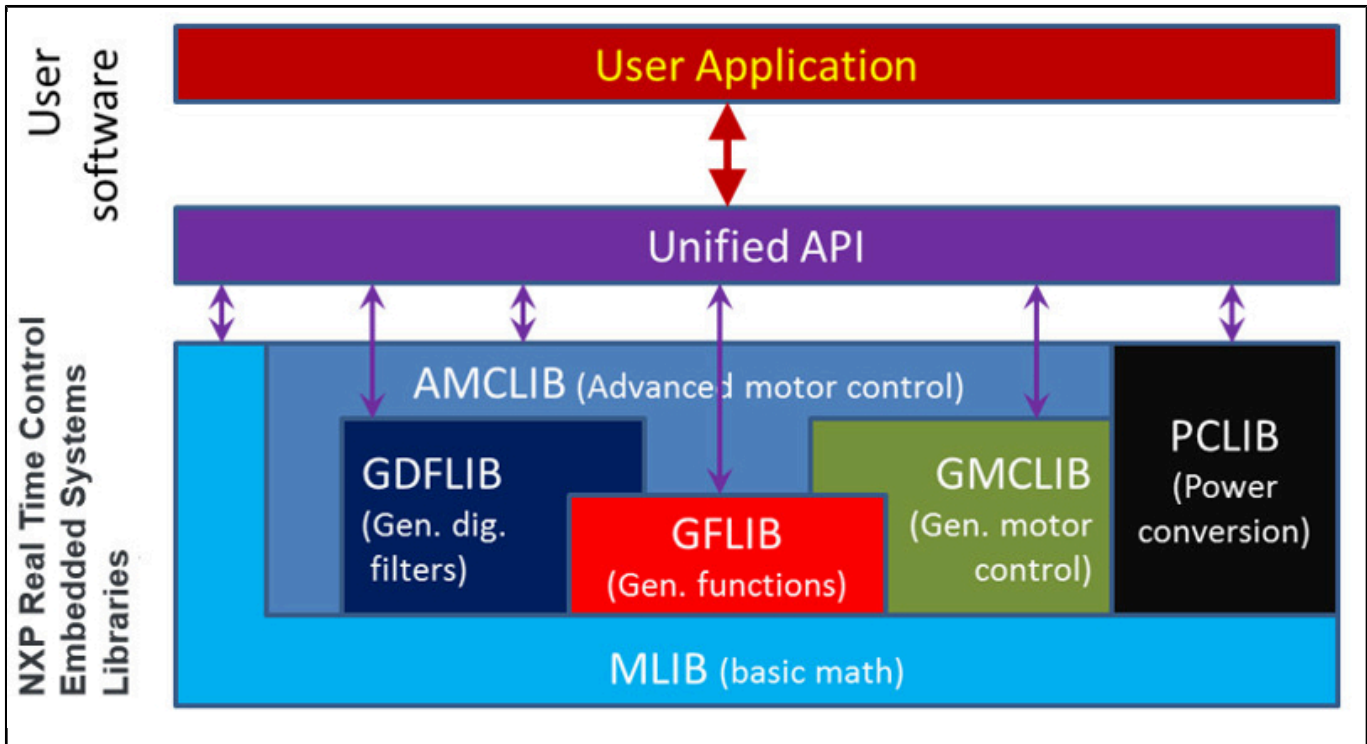
View additional information for Real Time Control Embedded Software Motor Control and Power Conversion Libraries.

Note: The information on this document is subject to change without notice.

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