



Real Time Control Embedded Software Motor Control and Power Conversion Libraries

RTCESL

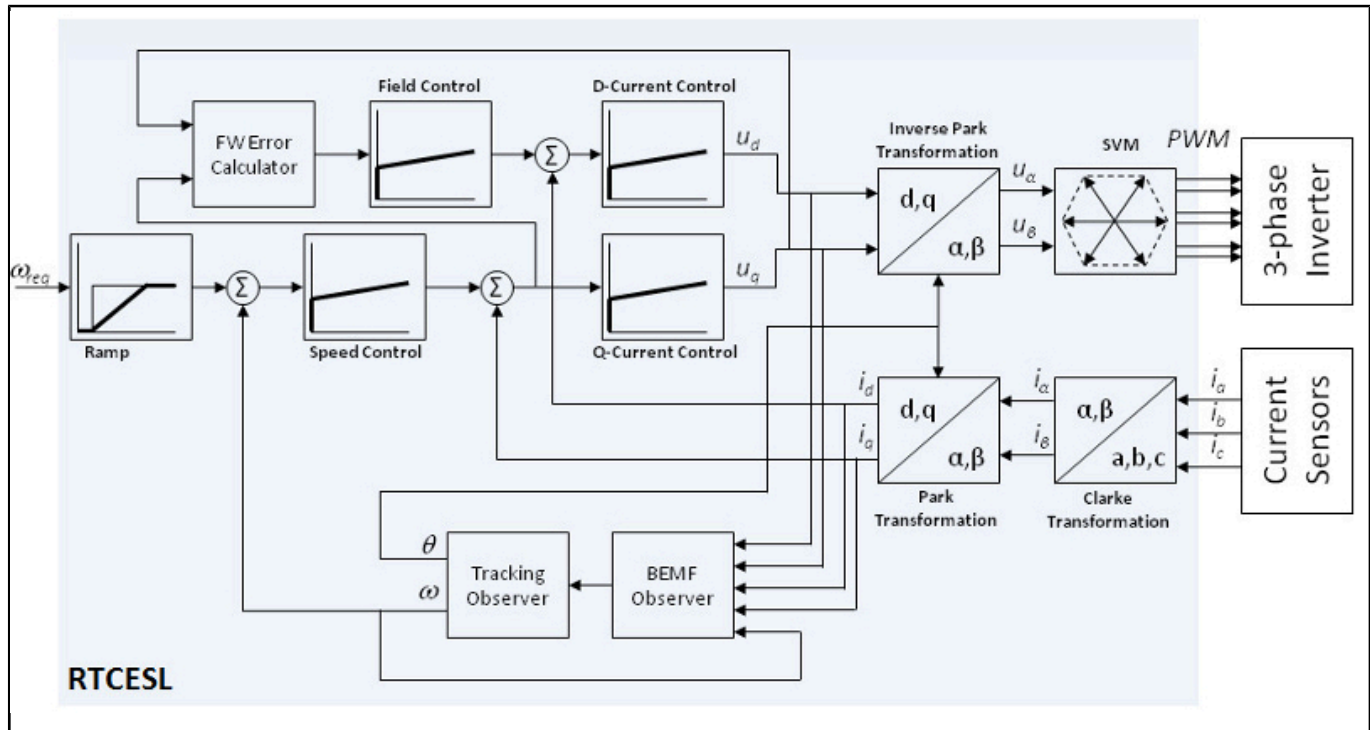
Last Updated: Sep 2, 2025

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.

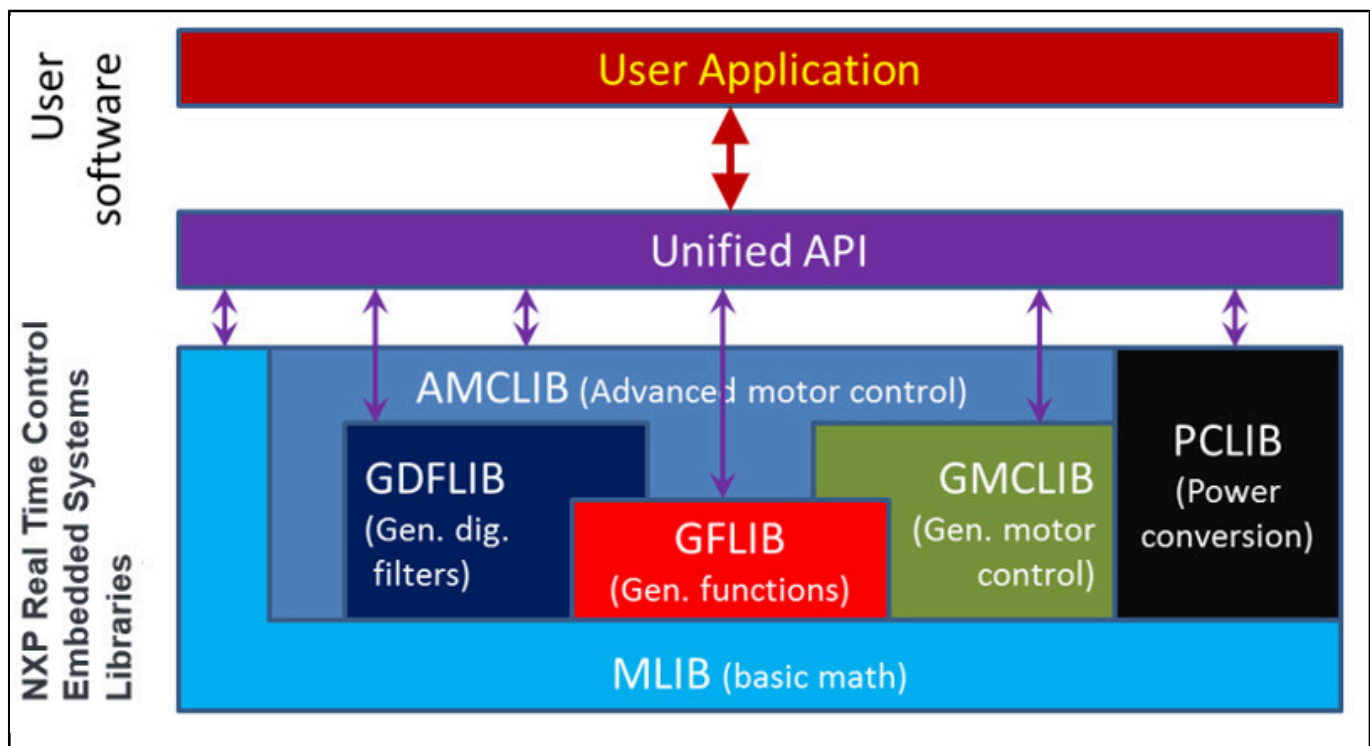
The libraries are highly optimized, tested on our hardware and are easy to use as they are implemented with a C-callable function interface. If the device has a hardware accelerator for specific calculations like Memory-Mapped Divide and Square Root Module (MMDVSQ) in some Cortex® M0+ core based devices 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 up to date version of the libraries is available on [NXP GitHub](#).

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.

www.nxp.com

NXP and the NXP logo are trademarks of NXP B.V. All other product or service names are the property of their respective owners. The related technology may be protected by any or all of patents, copyrights, designs and trade secrets. All rights reserved. © 2025 NXP B.V.