The Automotive Math and Motor Control Library (AMMCLib) set provides essential building blocks for rapid development of automotive embedded applications with high-performance arithmetic, trigonometric, digital signal processing and math functions. The AMMCLib is available as a production-ready precompiled or source code package.

A significant portion of the AMMCLib supports both sensor-based and sensorless motor control applications; it also assists with fixed-point fractional 16/32-bit and single-precision floating-point arithmetic. All AMMCLib functions come with MATLAB® and Simulink® bit-accurate models for model-based design, simulation and code generation supporting Embedded Coder®.
Auto AMMCLIB Architecture for S32Z/E and S32V Block Diagram

- **General Motor Control Library (GMCLIB)**
  - Park/Clark Transformation
  - Inverse Park/Clark
  - Space Vector Modulation
  - DC Bus Ripple Elimination
  - PMSM Decoupling
  - BackEMF Observer
  - Tracking Observer

- **Advanced Motor Control Library (AMCLIB)**

- **Advanced Digital Filter Library (ADFLIB)**
  - Vector/Matrix Multiplication
  - Kalman Filter
  - FFT
  - Linear System
  - Solver
  - Cholesky Decomposition
  - RBF Interpolation

- **General Function Library (GFLIB)**
  - Sine, Cosine, Tangent
  - Inverse Sine, Cosine, Tangent
  - Hysteresis
  - LUT, Ramp, Limitation
  - First, Second Order IIR Filter

- **General Digital Filter Library (GDFLIB)**

- **Mathematical Library (MLIB)**
  - Absolute Value
  - Addition, Subtraction
  - Multiplication, Division
  - Right/Left Shift
  - Type Conversion

Automotive software General Block Diagram Block Diagram

- **SERVICES / APPLICATION SOFTWARE**
- **MIDDLEWARE**
- **OS / DRIVERS / SAFETY**
- **HYPERVISOR (if available)**
- **ARM CORTEX CORE(S)**
- **FIRMWARE / HW ACCELERATORS**

NXP TOOLS & IDE

View additional information for Automotive Math and Motor Control Library (AMMCLib).