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 General Architecture Block Diagram

GMCLIB

AMCLIB

- Park/Clark Transformation
- Inverse Park/Clark
- Space Vector Modulation
- DC Bus Ripple Elimination
- PMSM Decoupling
- BackEMF Observer
- Tracking Observer

GFLIB

GDFLIB

- Sine, Cosine, Tangent
- Inverse Sine, Cosine, Tangent
- Hysteresis
- LUT, Ramp, Limitation
- First, Second Order IIR Filter

MLIB

- Absolute Value
- Addition, Subtraction
- Multiplication, Division
- Right/Left Shift
- Type Conversion

\[ (a \cdot b) + (c \cdot d) \]

Auto AMMCLIB Architecture for KEA Block Diagram

GMCLIB

- Park/Clark Transformation
- Inverse Park/Clark
- Space Vector Modulation
- DC Bus Ripple Elimination
- PMSM Decoupling

GFLIB

GDFLIB

- Sine, Cosine, Tangent
- Inverse Sine, Cosine, Tangent
- Hysteresis
- LUT, Ramp, Limitation
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View additional information for Automotive Math and Motor Control Library (AMMCLib).