GE Fanuc
Intelligent Platforms

AXISLib–CL

Generic Platform Signal Processing 'C' libraries

Features

- Comprehensive signal and vector processing functionality.
- Accelerates engineering development.
- Both industry standard VSIPL and proprietary AXISLib-RSPL API provided.
- 100% compatible with the platform optimized AXISLib products.
- Generic C implementation for platform independence.
- Supports both x86 and PPC based architectures.
- Multiple operating system support (VxWorks®, LynxOS®, Linux®, Windows®).

Accelerating development of embedded real-time signal processing applications

The AXISLib-CL Signal and Vector Processing Library is an AXIS software module providing digital signal processing and mathematical functions. It enables developers to get a head start with application development and algorithm modeling as it is designed to support both desktop and embedded platforms, thus enabling evaluation and development to begin before target hardware is available.

The product is platform independent, and provides both the industry standard VSIPL API and the AXISLib-RSPL API, giving the user flexibility and choice.

The VSIPL API provides the developer an industry standard interface as defined by the VSIPL forum. The module is compliant with the VSIPL Core 1.0 profile and implements over 512 vector, signal and image processing functions. It provides application portability between platforms and consistency across data types, processors and vendor implementation – accelerating engineering development and new technology insertion.

The AXISLib-RSPL API provides the developer complete control over the data flow, data management and customization, providing rapid development of real-time application code, while ensuring that memory management is as efficient as possible. The module implements over 450 vector, signal and image processing functions. It provides excellent portability between operating systems, as well as interoperability between present and future GE Fanuc Intelligent Platforms products. The Library minimizes costs while providing flexibility and peace of mind.

These libraries are 100% compatible with the platform optimized AXISLib-VSIPL and AXISLib-RSPL products, requiring just a recompile to rapidly transition to a highly optimized platform specific, deployable solution.

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AXISLib–CL Generic Platform Signal Processing 'C' Libraries

AXIS Multicomputer

Open Architecture, COTS Multiprocessor Solutions

Customer Application
AXIS Advanced Multiprocessor Integrated Software
Universal Interface Layer (UIL)
Board Support Package (BSP)
Built-in-Test (Configurable POST)
I/O, SBCs, Multiprocessors, Fabric Switches

Features

Function Set	Description
Scalar	
Complex Scalar	40 functions for performing complex scalar math
Index Scalar	4 functions for indexing matrix elements
Random Number Generation	
Random Numbers	8 functions for generating random numbers, vectors and complex vectors
Vector and Elementwise Operations	
Elementary Mathematical	18 functions performing elementary vector math (sin, cos, tan, atan, exp, log, sqrt, etc.)
Unary Operations	35 functions for operating on a single vector or matrix
Binary Operations	57 functions for operating either two vectors or matrices or one vector and a scalar
Ternary Operations	24 functions for operations requiring three inputs
Logical Operations	8 functions for performing logical operations on vectors or matrices
Selection Operations	23 functions for selecting a subset of a vector or matrix
Bitwise and Boolean Logical Operators	12 functions for performing Bitwise and Boolean operations on vectors and matrices
Element Generation and Copy	26 functions for copying and generating vector elements
Manipulation Operations	23 functions for vector and matrix manipulation (e.g. scatter, gather and swap)
Signal Processing	
FFTs	39 functions for performing 1D and 2D FFTs (real-complex, complex-real, complex-complex in place and out-of-place)
Windowing	4 windowing functions (Blackman, Hanning, Kaiser, Chebyshev)
Filter	8 functions for FIR filtering
Convolution	3 functions convolutions (1D)
Correlation	3 functions correlations (1D)
Histogram	1 function histograming
Linear Algebra	
Matrix and Vector Operations	22 functions for performing linear algebra on vectors and matrices
Special Linear System Solvers	6 functions
General Square Linear System Solvers	10 functions
Symmetric Linear System Solvers	10 functions

Ordering Information

AXISLIB-CL1M	Maintenance Agreement. Includes the right to use license and 1 x runtime license. Annually renewable.
AXISLIB-CL1RC	Run-Time license. One required per processor on which the library is deployed.
AXISLIB-PRO1M	Bundled package including AXISLib-CL, AXISLib-RSPL and AXISLib-VSIPL. Maintenance Agreement. Includes the right to use license and 1 x runtime license. Annually renewable.
AXISLIB-PRO1RC	Run-Time license. One required per processor on which the library is deployed.

About GE Fanuc Intelligent Platforms

GE Fanuc Intelligent Platforms, a joint venture between General Electric Company (NYSE: GE) and FANUC LTD of Japan, is an experienced high-performance technology company and a global provider of hard-ware, software, services, and expertise in automation and embedded computing. We offer a unique foundation of agile, advanced and ultra-reliable technology that provides customers a sustainable advantage in the industries they serve, including energy, water, consumer packaged goods, government & defense, and telecommunications. GE Fanuc Intelligent Platforms is a worldwide company headquartered in Charlottesville, VA and is part of GE Enterprise Solutions. For more information, visit www.gefanuc.com.

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Additional Resources

For more information, please visit the GE Fanuc Intelligent Platforms web site at:

www.gefanuc.com

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