The NAG Library implementation for the Xeon Phi™ Coprocessor has been developed in conjunction with Intel to harness the performance of the Intel Xeon Phi™ coprocessor.

Many of the algorithms in this Library are tuned to run significantly faster on the coprocessor both in offload or native modes.

**NAG Functionality now available**

The NAG Library for Xeon Phi™ has proven scalability, speed and correctness making it easy to exploit the power of the coprocessor. It contains all the powerful, robust and flexible algorithms in the NAG Library but is specifically optimized for coprocessor systems. By using the NAG Library you’re future proofing your numerical software investment as your hardware grows.

**Specialized parallel functionality**

Routines in many areas* can benefit from shared memory parallelism:

- Dense and Sparse Linear Algebra
- FFTs
- Random Number Generators
- Quadrature
- Partial Differential Equations
- Interpolation
- Curve and Surface Fitting
- Correlation and Regression Analysis
- Multivariate Methods
- Time Series Analysis
- Financial Option Pricing
- Global Optimization
- Wavelets

*Note: This list is only a guide. Which routines benefit from offload to the coprocessor depends on many factors; including problem size, number and configuration of coprocessor boards as well as number and configuration of host CPU cores.

**Supports three modes of working with the coprocessor**

The NAG Library can run in native mode; can run in a programmer controlled offload mode; and, can also be set to automatically manage offloads to help optimize total system performance depending on size of calculations.

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*Example of Offload Performance*
NAG Library for Xeon Phi™

Expert Support
When you use our dedicated Customer Support Service, not only do you automatically receive updates, but you have direct access to our experts, who are there to assist you with your technical queries or difficulties.

Quality Assurance
The validity of each component is tested on each of the machine ranges for which the product is available. Only when an implementation satisfies our stringent accuracy standards is it released. As a result, you can rely on the proven accuracy and reliability of the components to give you the right answers.

Documentation
The software Library includes first-class documentation giving you the detailed information you need to carry out your work quickly and effectively.
The Library is organized into Chapters - each with its own Introduction and Contents list followed by a comprehensive document for each function detailing its purpose, description, list of parameters and possible error exits. Example programs and results are also supplied. All examples are available on-line to facilitate their use as templates for the users' calling programs.

Numerical Services for Coprocessor architectures
NAG Numerical Services can be employed to help evaluate the potential benefits of Intel Xeon Phi and other co-processor, accelerator and GPGPU architectures.
Additionally Numerical Services offer the facility to tailor existing code for co-processors; to tune underlying algorithms for best performance and to develop and implement custom methods. NAG is also able to train programming teams during services engagements and support client specific work.

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