Intel® Ordinary Differential Equation Solver Library
Release Notes

Contents

Overview

The Intel® Ordinary Differential Equation Solver Library (Intel® ODE Solver Library) is a powerful, cross-platform tool set for solving initial value problems for Ordinary Differential Equations. The library offers explicit, implicit, and mixed solvers for non-stiff and stiff ODE problems, as well as problems with a variable stiffness. The Intel® ODE Solver Library uses an advanced implementation of the modern algorithms. For more experienced users, the library provides the insight into the solvers sufficient to finer tune them for better performance. The library is available for both Windows* and Linux* operating systems.

The Intel® ODE Solver Library offers:

Explicit ODE solver – A multi-stage solver for non-stiff and middle-stiff ODE problems.

Implicit ODE solvers – L-stable solvers for stiff ODE problems supporting both automatic and user-defined computation of the Jacobi matrix.

Hybrid ODE solvers – Efficient solvers for the ODE problems with an unknown or variable stiffness. Support both automatic and user-defined computation of the Jacobi matrix, as well as automatic choice of the appropriate integration method.

Universal ODE solver – A powerful interface to all the three above types of solvers. Enables experienced users and researchers to tune the solver to fit their needs for performance.

The solvers explore some new approaches for solving ODE problems with an advanced stability control.

The Intel® ODE Solver Library package contains the following components:

- The library
- Examples
- Documentation.

Note: The Intel® ODE Solver Library has a “prototype” level of maturity and is expected to continuously evolve in further updates and releases. So, any feedback of yours is greatly appreciated.

System Requirements

This section details the processor, disk space, and operating system requirements for installing the Intel® ODE Solver Library.

Processor Requirements

The following processors were used for compatibility testing of the Intel® ODE Solver Library.

Processor	IA-32 architecture	Intel® 64 architecture
Intel® Core™ Duo processor	+	
Intel® Core™2 Duo processor	+	+
Intel® Xeon® processor 50xx, 51xx, 7xxx series		+

Although the library was not tested on systems based on other Intel® processors, you can use it on such systems. In case you experience any issues, please let us know. To do this, visit the web site where you got the package.

Memory and Disk Space Requirements

Memory and disk space requirements for the application you are tuning may be larger than the Intel® ODE Solver Library requires. In this case, make sure you have sufficient disk space for running your application along with the Intel® ODE Solver Library.

The Intel® ODE Solver Library requires the following disk space:

Component	Disk Space
Total (archive file, its extracted files, and all installed components)	~ 1 MB

Software Requirements

The Intel® ODE Solver Library has been tested with the following Windows* and Linux* distributions:

Operating System	IA-32 architecture	Intel® 64 architecture
Microsoft* Windows* XP Service Pack 2	+	+
SuSE* Linux* Enterprise Server 9 Service Pack 3 (kernel 2.6.5)	+	+

The Intel® ODE Solver Library was tested to be compatible with the following compilers:

- GCC* 3.3
- G77* 3.3
- GFORTRAN* 4.2
- Intel® C++ Compiler 10.1
- Intel® Fortran Compiler 10.1
- Microsoft* Visual C++* 2005

Although the library was not tested for compatibility with other compilers and operating systems, you can use the library with them. In case you experience any issues, please let us know. To do this, visit the web site where you got the package.

Installation

To see the installation details for the Intel® ODE Solver Library, please refer to the Installation and Startup Guide (`ODE_install.pdf`).

Documentation

The documentation for the Intel® ODE Solver Library is presented in the following files:

- Installation and Startup Guide, describes steps required to install the Intel® ODE Solver Library.
- Release Notes (this document), lists systems that were tested for compatibility with the Intel® ODE Solver Library and describes known issues and product limitations.
- Reference Manual, provides a full-scale product description and usage models.

Related Products and Services

Information on Intel® software development products is available at http://www.intel.com/software/products. Some of the related products include:

- The Intel® Software College provides training for developers on leading-edge software development technologies. Training consists of online and instructor-led courses covering all Intel architectures, platforms, tools, and technologies.
- Accelerate software performance using Intel® compilers. Compatible with other tools you use, the Intel® compilers integrate into popular development environments and features source and binary compatibility with other widely-used compilers.
- The Intel® Performance Library Suite provides a set of routines optimized for various Intel® processors.
- The Intel® Math Kernel Library offers highly optimized, extensively threaded math routines for scientific, engineering, and financial applications that require maximum performance.
- The Intel® Integrated Performance Primitives. This highly optimized Intel® software library contains video, imaging, compression, cryptography, audio, speech recognition, and signal processing functions and codec component functions for digital media and data-processing applications.

Known Problems and Limitations

No problems and limitations are known at this moment.

Feedback and Technical Support

Your feedback is very important to us. To point to an issue with the product and get technical advice, visit the web site where you got the package. Learn there the options that the discussion forum suggests. We do not provide any technical support for this product.

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