



Intel® Software Development Products for Intel Platforms and Technologies

Intel® Fortran Compiler for Linux*

Overview

Intel® compilers help software run at top speed. They also feature compatibility and plug into popular development environments, supporting the way developers work, and feature source and binary compatibility with popular compilers. Every compiler includes support that comes directly from Intel, including updates, technical support and expertise about Intel architecture. Intel® Fortran Compiler for Linux* is compatible with leading development environments and adheres to the latest ISO Fortran 95 standard. Intel Fortran Compiler for Linux provides a variety of optimization options to increase application performance, including interprocedural optimization, profile guided optimization and data prefetching. It includes features to enhance performance of threaded applications, such as support for OpenMP* 2.0, auto-parallelization and auto-vectorization.

Intel Fortran Compiler for Linux is the next generation Fortran compiler for IA-32 and Intel Itanium® 2 processors. It is an ISO Fortran 95 compiler that combines the Compaq Visual Fortran* (CVF) language features with the code-generation and optimization features of Intel compiler technology. It features over 250 commands that are common to Intel Fortran and CVF to support the way developers work, preserve investment code bases, and support commonly used Linux development tools. New tools packaged with the compiler include the Intel® Code Coverage Tool and the Intel® Test Prioritization Tool, both of which can be used to improve application quality. Every compiler includes one year of support that comes directly from Intel, including updates, technical support and expertise about the Intel architecture.

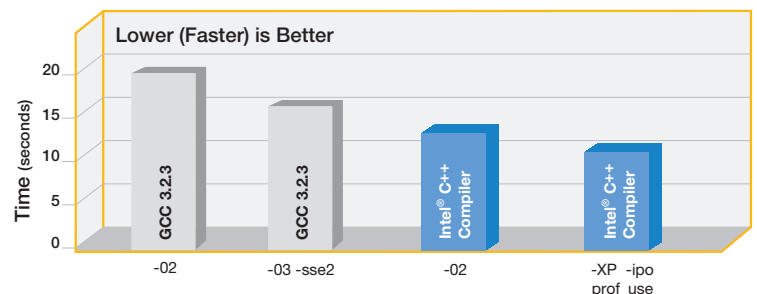
Features and Benefits

- **Compatible with Linux* utilities.** Widely-used utilities such as make, Emacs and gdb
- **Highly-optimized, floating-point emulation** allows development of performance-sensitive applications that use floating-point operations
- **Interprocedural optimization (IPO)** can dramatically improve application performance in programs that contain many frequently used small- or medium-sized functions, especially for programs that contain calls within loops
- **Profile-Guided Optimization (PGO)** reduces instruction-cache thrashing and reorganizes code layout, shrinks code size and reduces branch mispredictions to improve application performance
- **Full Support for Streaming SIMD Extensions 3 (SSE3)** is provided for Intel processors code-named Prescott. The compiler provides support for architectural features of Intel processors
- **Multi-threaded** application support for OpenMP* and auto-parallelism is available
- **Intel® Debugger** saves you effort
- **Fully-functional trial version** is available

POV-Ray* on IA-32 and Linux*

Image Render Time: in Seconds
Lower (Faster) is Better

Compiler and Option	Time
GCC 3.2.3 -O2	18.36
GCC 3.2.3 -O3 -sse2	13.95
Intel® C++ Compiler 8.0 -O2	11.48
Intel C++ Compiler 8.0 -xP -ipo prof_use	8.05



Configuration: Intel® C++ Compiler 8.0 for Linux*, GCC 3.2.2 20030502 (Red Hat Linux* 3.2.3-20), POV-Ray 3.1, Intel® processor code-named Prescott 2.8 GHz, Red Hat EL 3.0

Results of performance comparison between Intel® C++ Compiler 8.0 for Linux* against GCC 3.2.3. **Lower is better.** The application compared is POV-Ray*, a graphics rendering engine.

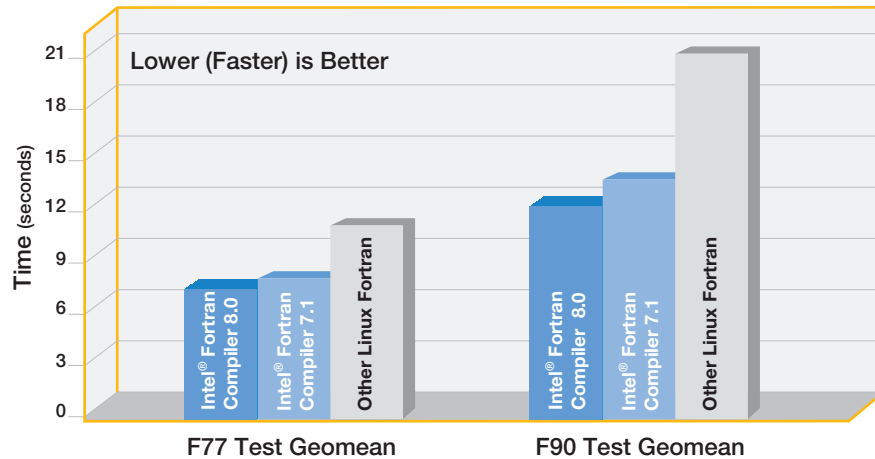
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Polyhedron* on IA-32 and Linux*

Polyhedron Tests
Lower (Faster) is Better

F77 Test Geomean	
Intel® Fortran 8.0	6.27
Intel Fortran 7.1	6.86
Other Linux Fortran	9.97

F90 Test Geomean	
Intel Fortran 8.0	10.62
Intel Fortran 7.1	12.19
Other Linux Fortran	20.40



Configuration: Intel® Fortran Compiler 8.0 for Linux*, Intel Fortran Compiler 7.1 for Linux, PGI HPF* 3.2.4, Intel® Pentium® 4, 1.8 GH , 2 B Red Hat 9 ernel 2.4.20 , glibc 2.3.2

Results of performance comparisons between Intel® Fortran Compiler 8.0 for Linux*, Intel® Fortran Compiler 7.1 for Linux, and PGI HPF* 3.2.4 Linux Fortran Compiler. **Lower (Faster) is better.** Performance tests done by Polyhedron* on Polyhedron configurations. This information is published on their web site at www.polyhedron.com and is reproduced here with permission.

Performance tests and ratings are measured using specific computer systems and/or components and reflect the approximate performance of Intel Products as measured by those tests. Any difference in system hardware or software design or configuration may affect actual performance. Buyers should consult other sources of information to evaluate the performance of systems or components they are considering purchasing. For more information on performance tests and on the performance of Intel products go to www.intel.com/software/products

What's New in the Intel Fortran Compiler for Linux

- Compaq Visual Fortran front-end, Intel Fortran back-end: Combines the CVF front-end Fortran language features with the Intel Fortran back-end code-generator and optimizer to bring the next-generation Fortran compiler to developers working on IA-32 or Itanium 2 processors using Linux. Intel Fortran Visual Fortran Compiler 8.0 for Windows* brings similar capabilities to Windows-based developers. (Windows and Linux compilers are packaged and sold separately).
- Commands: Over 250 commands and synonyms common to both Intel Fortran and CVF are provided to support users of earlier CVF or Intel Fortran compiler users.
- New Processor Support: The IA-32 compiler provides optimization support for the latest Intel processors, including

the Intel processor code-named Prescott, a new generation of IA-32 processors.

- Advanced optimizations including full support for Streaming SIMD Extensions (IA-32 processors), interprocedural optimization, profile guided optimization, data prefetching, automatic vectorizer, auto-parallelization and more.
- Compiler Code-Coverage Tool: Presents how much application code is actually used when applied against specified workloads. Used in a variety of ways to improve development efficiency, reduce defects, and increase application performance.
- Compiler Test-Prioritization Tool: Select and prioritize application tests as application profiles change. With knowledge gained, developers can use the test prioritization tool to target and maintain efficient testing procedures.

PERFORMANCE

Optimize Your Applications

The Intel Fortran Compiler for Linux is designed to take advantage of the performance features of Intel architecture. Advanced optimization features can be used by developers to deliver even more performance. Intel Fortran provides support for threaded application development and optimization through support of OpenMP 2.0 and the auto-parallelization and auto-vectorization options.

COMPATIBILITY

Next Generation Fortran

Compaq Visual Fortran compiler front-end language features have been combined with the Intel back-end code-generation and optimization features to form Intel Fortran Compiler 8.0 for Linux. The compiler works with widely-used Linux command-line development tools preserving the way most Linux developers work and the investment in the way Fortran applications are built.

SUPPORT

Intel® Premier Support

Every purchase of an Intel® Software Development Product includes a year of support services, which provides access to Intel® Premier Support and all product updates during that time. Intel Premier Support gives you online access to technical notes, application notes, and documentation. Install the product, and then register to get support and product update information.

REQUIREMENTS

Hardware and Software

For IA-32 and Intel Itanium processor system requirements visit: www.intel.com/software/products/compilers

Intel provides both the tools and support to enhance the performance, functionality and efficiency of software applications.

Compatible with leading Windows* and Linux* development environments, Intel® Software Development Products are the fastest and easiest way to take advantage of the latest features of Intel processors. Intel Software Development Products are designed for use in the full development cycle, and include Intel® Performance Libraries, Intel Compilers (C++, Fortran for Windows and Linux), Intel® VTune™ analyzers, Intel® Threading Tools and Intel® Cluster Tools.

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