Intel® C++ Compiler 16.0 for FreeBSD* Release Notes

Installation Guide and Release Notes

12 April 2016

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1 Introduction

This document provides a summary of new and changed features of the Intel® C++ Compiler 16.0 for applications running on FreeBSD*. It also includes notes about features and problems not described in the product documentation.

1.1 Change History

1.1.1 Changes for Intel® C++ Compiler 16.0 Update 3

- Bugfixes

1.1.2 Changes for Intel® C++ Compiler 16.0 Update 2

- Bugfixes

1.1.3 Changes for Intel® C++ Compiler 16.0 Update 1

- Bugfixes

1.1.4 Changes for Intel® C++ Compiler 16.0

- Improved installation
- Bugfixes

1.1.5 Changes for Intel® C++ Compiler 16.0 Beta Update

- The FreeBSD default shell “sh” is supported.
- The “compilervars.csh” is provided.
- Simplified environment setup
- Bugfixes

1.2 System Requirements

For an explanation of architecture names, see http://intel.ly/q9JVjE

1.2.1 Host Hardware Requirements

- A PC based on Intel® 64 architecture processor supporting the Intel® Streaming SIMD Extensions 2 (Intel® SSE2) instructions (Intel® Pentium® 4 processor or later, or compatible non-Intel processor)
- For the best experience, a multi-core or multi-processor system is recommended
- 1GB of RAM (2GB recommended)
- 250MB free disk space for all features

1.2.2 Host Software Requirements

One of the following host distributions: (This is the list of distributions supported by Intel® C++ Compiler 16.0, other distributions may or may not work and are not recommended - please refer to Technical Support if you have questions):

- FreeBSD* version 10.x (64-bit)

Notes

- Compiling very large source files (several thousands of lines) using advanced optimizations such as -O3 or -ipo may require substantially larger amounts of RAM.
- The above lists of processor model names are not exhaustive - other processor models correctly supporting the same instruction set as those listed are expected to work. Please refer to Technical Support if you have questions regarding a specific processor model

Some optimization options have restrictions regarding the processor type on which the application is run. Please see the documentation of these options for more information

1.2.3 Target Hardware Requirements

- Development platform based on the Intel® Atom™ processor Z5xx, N4xx, N5xx, D5xx E6xx, N2xxx, D2xxx, Z3xxx, E3xxx, C2xxx, the Intel® Atom™ processor CE4xxx, CE53xx or the Intel® Puma6™ Media Gateway.
- Alternatively development platform based on 2nd, 3rd or 4th generation Intel® Core™ microarchitecture based Intel® Core™ processor or Intel® Xeon™ processor.
- Maximum additional required hard disk space for shared compiler libraries
  Intel® 64: 25 MB

1.2.4 Target Software Requirements

The target platform should be based on one of the following environments:

- FreeBSD* version 10.x (64-bit)

1.3 Documentation

Product documentation is available in html format. The start page is located here:

```
<installdir>/documentation_2016/en/compiler_c/iss2016/
iss_freebsd_ccomp_urg/index.htm
```

Optimization Notice

Intel's compilers may or may not optimize to the same degree for non-Intel microprocessors for optimizations that are not unique to Intel microprocessors. These optimizations include SSE2, SSE3, and SSSE3 instruction sets and other optimizations. Intel does not guarantee the availability, functionality, or effectiveness of any optimization on microprocessors not manufactured by Intel. Microprocessor-dependent optimizations in this product are intended for use with Intel microprocessors. Certain optimizations not specific to Intel microarchitecture are reserved for Intel microprocessors. Please refer to the applicable product User and Reference Guides for more information regarding the specific instruction sets covered by this notice.

Notice revision #20110804

1.4 Samples

Samples can be found in the `samples` folder.

1.5 Technical Support

If you did not register your compiler during installation, please do so at the Intel® Software Development Products Registration Center. Registration entitles you to free technical support, product updates and upgrades for the duration of the support term.

To submit issues related to this product please visit the Intel Premier Support webpage and submit issues under the product **Intel(R) System Studio**.

Additionally you may submit questions and browse issues in the Intel® System Studio User Forum.

For information about how to find Technical Support, product documentation and samples, please visit http://software.intel.com/en-us/intel-system-studio.

Note: If your distributor provides technical support for this product, please contact them for support rather than Intel.

1.6 Installation

The Intel® C++ Compiler for FreeBSD* is installed as part of the Intel® System Studio for FreeBSD* installation. The installation can be executed as user and as root.

Start the Intel® System Studio for FreeBSD* installation on the FreeBSD* host as below:

```
./l_cembd_freebsd_2016.x.xxx.sh
```

Note: It might be required to set the executable bit of the installer file before the installer can be executed. The executable bit can be added as below:

```
chmod +x l_cembd_freebsd_2016.x.xxx.sh
```

1.7 Uninstalling the Product

The Intel® C++ Compiler for FreeBSD* can be removed by deleting the installation folder.

```
rm -rf <installdir>
```

2 Intel® C++ Compiler

2.1 Environment Setup

To setup the environment for the Intel® C++ Compiler and integrate it correctly with the build environment on your FreeBSD* host, execute the following command:

a. From shell:
   ```
   $ cd <install-dir>
   $ . bin/compilervars.sh
   ```
   where <install-dir> is the top-level Intel® System Studio installation directory.

b. From csh:
   ```
   $ cd <install-dir>
   $ source bin/compilervars.csh
   ```
   where <install-dir> is the top-level Intel® System Studio installation directory.

2.2 Using the Compiler

After setup of the environment you can invoke the compiler as below:

- To build C source code:
  ```
  $ icl test.c –o test
  ```
- To build C++ source code:
  ```
  $ icl++ test.cpp –o test
  ```

2.3 Known Issues and limitations

2.3.1 Establishing the environment (compilervars.sh / compilervars.csh) does result in an error message

If setting up the environment results in an error like:

```
$ . bin/compilervars.sh
bin/compilervars.sh: 10: Syntax error: newline unexpected (expecting
word)
```

or

```
% source bin/compilervars.csh
Missing name for redirect.
```

The install script was not executed initially. Follow the instructions in section Installation.

2.3.2 Intel® Cilk™ Plus is not supported

Intel® Cilk™ Plus is not supported in this release of the Intel® C++ Compiler for FreeBSD*.

3 Attributions

As referenced in the End User License Agreement, attribution requires, at a minimum, prominently displaying the full Intel product name (e.g. "Intel® Math Kernel Library") and providing a link/URL to the Intel® MKL homepage (http://www.intel.com/software/products/mkl) in both the product documentation and website.

The original versions of the BLAS from which that part of Intel® MKL was derived can be obtained from http://www.netlib.org/blas/index.html.

The original versions of LAPACK from which that part of Intel® MKL was derived can be obtained from http://www.netlib.org/lapack/index.html. The authors of LAPACK are E. Anderson, Z. Bai, C. Bischof, S. Blackford, J. Demmel, J. Dongarra, J. Du Croz, A. Greenbaum, S. Hammarling, A. McKenney, and D. Sorensen. Our FORTRAN 90/95 interfaces to LAPACK are similar to those in the LAPACK95 package at http://www.netlib.org/lapack95/index.html. All interfaces are provided for pure procedures.

The original versions of ScaLAPACK from which that part of Intel® MKL was derived can be obtained from http://www.netlib.org/scalapack/index.html. The authors of ScaLAPACK are L. S. Blackford, J. Choi, A. Cleary, E. D'Azevedo, J. Demmel, I. Dhillon, J. Dongarra, S. Hammarling, G. Henry, A. Petitet, K. Stanley, D. Walker, and R. C. Whaley.

The Intel® MKL Extended Eigensolver functionality is based on the Feast Eigenvalue Solver 2.0 http://www.ecs.umass.edu/~polizzi/feast/

PARDISO in Intel® MKL is compliant with the 3.2 release of PARDISO that is freely distributed by the University of Basel. It can be obtained at http://www.pardiso-project.org.

Some FFT functions in this release of Intel® MKL have been generated by the SPIRAL software generation system (http://www.spiral.net/) under license from Carnegie Mellon University. The Authors of SPIRAL are Markus Puschel, Jose Moura, Jeremy Johnson, David Padua, Manuela Veloso, Bryan Singer, Jianxin Xiong, Franz Franchetti, Aca Gacic, Yevgen Voronenko, Kang Chen, Robert W. Johnson, and Nick Rizzolo.

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