INTEL® PARALLEL STUDIO XE 2017 UPDATE 8

Windows* and Linux* Release Notes

19 October 2018

Contents

1   Introduction

Intel® Parallel Studio XE has three editions: Composer Edition, Professional Edition, and Cluster Edition.

Intel® Parallel Studio XE Composer Edition provides a software tools environment for developing Fortran, C, and/or C++ code using Intel® Compilers. Intel® Parallel Studio XE Composer Edition also includes Intel® Math Kernel Library, Intel® Performance Primitives, Intel Threading Building Blocks, and Intel® Data Analytics Acceleration Library (Intel® DAAL).

Intel® Parallel Studio XE Professional Edition adds Intel® VTune™ Amplifier XE for performance analysis, Intel® Inspector for correctness analysis, and Intel® Advisor for parallelism discovery.

Intel® Parallel Studio XE Cluster Edition adds support for distributed memory computing via Intel® MPI Library, Intel® MPI Benchmarks, and Intel® Trace Analyzer and Collector. Intel® Cluster Checker provides cluster health monitoring tools.

On completing the Intel® Parallel Studio XE installation process, locate the `getstart*.htm` file in the `documentation_2017/en/ps2017` folder under the target installation path. This file is a documentation map to navigate to various information resources of Intel® Parallel Studio XE.

For licensing information, please refer to the Intel End User Licensing Agreement (EULA) available at https://software.intel.com/en-us/articles/end-user-license-agreement.

2   Product Contents

The following table shows which Intel® Software Development Tools are present in each edition of Intel® Parallel Studio XE 2017.

Component	Composer Edition	Professional Edition	Cluster Edition
Intel® C++ Compiler	X	X	X
Intel® Fortran Compiler / Intel® Visual Fortran	X	X	X
Intel® Integrated Performance Primitives (Intel® IPP)	X	X	X
Intel® Math Kernel Library (Intel® MKL)	X	X	X
Intel® Data Analytics Acceleration Library (Intel® DAAL)[1]	X	X	X
Intel Threading Building Blocks (Intel TBB)	X	X	X
Intel-provided Debug Solutions	X	X	X
Microsoft Visual Studio Shell* for Intel® Visual Fortran **(for Windows* OS only)**	X	X	X
Intel® Advisor		X	X
Intel® Inspector		X	X
Intel® VTune™ Amplifier XE		X	X
Intel® Cluster Checker **(For Linux* OS only)**			X
Intel® MPI Benchmarks			X
Intel® MPI Library			X
Intel® Trace Analyzer and Collector			X

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[1] Intel® Integrated Performance Primitives, Intel® Data Analytics Acceleration Library, and Intel® Threading Building Blocks are not included in Fortran language only editions.

The table below lists the product components and related documentation.

Component	Version	Documentation
Intel® Advisor	2017 Update 5	get_started.htm
Intel® C++ Compiler	17.0 Update 8	get_started_wc.htm for Windows* OS get_started_lc.htm for Linux* OS
Intel® Cluster Checker **(For Linux* OS only)**	2017 Update 2	get_started.htm
Intel® Data Analytics Acceleration Library (Intel® DAAL)	2017 Update 4	get_started.htm
Intel® Fortran Compiler / Intel® Visual Fortran Compiler	17.0 Update 8	get_started_wf.htm for Windows* OS get_started_lf.htm for Linux* OS
Intel® Inspector	2017 Update 4	get_started.htm
Intel® Integrated Performance Primitives (Intel® IPP)	2017 Update 3	get_started.htm
Intel® Math Kernel Library (Intel® MKL)	2017 Update 4	get_started.htm
Intel® MPI Benchmarks	2017 Update 3	ReadMe_IMB.txt IMB_Users_Guide.htm
Intel® MPI Library	2017 Update 5 (Windows*) 2017 Update 4 (Linux*)	get_started.htm
Intel Threading Building Blocks (Intel TBB)	2017 Update 8	get_started.htm
Intel® Trace Analyzer and Collector	2017 Update 4	get_started.htm
Intel® VTune™ Amplifier XE	2017 Update 6	get_started.htm
Intel-provided Debug Solutions		See below for additional information.
Microsoft Visual Studio Shell* for Intel® Visual Fortran **(For Windows* OS; installs only on the master node)**		See below for additional information.

2.1 Additional Information for Intel-provided Debug Solutions

The Intel-provided Debug solutions are based on GNU* GDB. Please see
https://software.intel.com/en-us/articles/intel-parallel-studio-xe-2017-composer-edition-fortran-debug-solutions-release-notes and https://software.intel.com/en-us/articles/intel-parallel-studio-xe-2017-composer-edition-c-debug-solutions-release-notes for information specific to this component.

2.2 Additional Information for Microsoft Visual Studio Shell* for Intel® Visual Fortran

A Fortran-only Integrated Development Environment (IDE) based on Microsoft Visual Studio Shell 2013* is provided for systems that do not have a supported Microsoft Visual Studio installed. Installation of the Fortran IDE has the following additional requirements:
- Microsoft Windows 7 SP1* or newer, or Microsoft Windows Server 2008 R2 SP1* or newer operating system
    - On Windows 8.1* and Windows Server 2012 R2*, KB2883200 is required
- Microsoft Windows 8.1 SDK*

2.3 Intel® Software Manager

The installation now provides an Intel® Software Manager to provide a simplified delivery mechanism for product updates and provide current license status and news on all installed Intel® software products.

You can also volunteer to provide Intel anonymous usage information about these products to help guide future product design. For more information please see http://intel.ly/SoftwareImprovementProgram.

3 What's New

This section highlights important changes from the previous product version. For more information on what is new in each component, please read the individual component release notes. The latest documentation for all components can be found at https://software.intel.com/en-us/intel-parallel-studio-xe-support/documentation. A current list of deprecated features can be found at https://software.intel.com/en-us/articles/intel-parallel-studio-xe-deprecation-information.

Changes since Intel® Parallel Studio XE 2017 Update 7:
- Bug fixes in Intel® C/C++ Compiler, Intel® Fortran Compiler, and Intel® MPI Library (Windows* only).

Changes since Intel® Parallel Studio XE 2017 Update 6:
- Components updated to current versions.
- Intel® C++ Compiler and Intel® Fortran Compiler provide new options to mitigate branch target injection.
- Intel® VTune™ Amplifier delivers fixes for issues due to recent OS security updates. See this article for more details.
- This update can be installed even if your support service has expired using your existing Serial Number

Changes since Intel® Parallel Studio XE 2017 Update 5:
- All components updated to current versions.
- Intel® C/C++ Compiler and Intel® Fortran Compiler bug fixes:

o   Fixed compatibility issue with Red Hat Enterprise Linux* 7.4.
o   Fixed offload issue for Intel® Xeon Phi™ Coprocessor (formerly codenamed Knights Corner) on Linux*
o   Fixed issue with -xhost not working on non-Intel hardware.

Changes since Intel® Parallel Studio XE 2017 Update 4:
- All components updated to current versions.
- Added support for Intel® Xeon® Scalable processors.
- Disabled evaluation option in the installer. Customers should use an evaluation license file to activate a trial.
- Intel® MPI Library:
  o   Deprecated support for the IPM statistics format.
  o   Tuned performance for processors based on Intel® microarchitecture codenamed Skylake and for Intel® Omni-Path Architecture.

Changes since Intel® Parallel Studio XE 2017 Update 2:
- All components updated to current versions.
- Added support for Microsoft Visual Studio 2017*.
- Added support for installing some libraries from yum, apt, or conda. See https://software.intel.com/en-us/articles/installing-intel-free-libs-and-python-yum-repo, https://software.intel.com/en-us/articles/installing-intel-free-libs-and-python-apt-repo, and https://software.intel.com/en-us/articles/using-intel-distribution-for-python-with-anaconda for more information.
- Added support for cluster installation on Microsoft Windows Server 2016*.
- Intel® Math Kernel Library (Intel® MKL), Intel® Integrated Performance Primitives (Intel® IPP) are distributed under Intel Simplified Software License. Intel Threading Building Blocks (Intel TBB) for Linux*, and macOS*, Intel® Data Analytics Acceleration Library (Intel® DAAL) for Linux*, and macOS* are distributed under Apache License, Version 2.0. See compilers_and_libraries_2017/licensing/ folder under the target installation path for reference.
- Intel® Advisor:
  o   Added recommendation to force scalar remainder for loops with low mask utilization on Intel® AVX-512.
  o   Extended "Gather recommendation" with "Constant (non-unit)" pattern.
- Intel® Data Analytics Acceleration Library:
  o   License switched to Apache License 2.0*.
- Intel® MPI Library:
  o   Improved MPI startup up to 8.5x on large HPC systems.
  o   Intel® Omni-Path Architecture is used by default on systems with multiple fabrics.
- Intel Threading Building Blocks:

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- o Adds a graph/matmult example to demonstrate support for compute offload to Intel® Graphics Technology in the flow graph API.
  - o The "compiler" build option now allows the user to specify a full path to the compiler.
- Intel® VTune™ Amplifier XE:
  - o Added support for Intel® Xeon Phi™ coprocessor code named Knights Landing from Windows* host.
  - o Enhanced support for applications using Intel Threading Building Blocks that helps identify code inefficiencies causing high Overhead and Spin time.
  - o Automated installation of collectors on a remote Linux* target system.

Changes since Intel® Parallel Studio XE 2017 Update 1:
- All components updated to current versions.
- Migration to SHA-256 digital signatures on Linux*.
- Intel® Advisor:
  - o Roofline Analysis is released as a public feature.
  - o Added call stacks for FLOPS and Trip Counts that enable total metrics.
  - o Filter by module for Survey, FLOPS, and Trip Counts collections.
- Intel® Cluster Checker:
  - o Added additional support for Intel® Xeon Phi™ Product Family x200 processors.
  - o Added additional support for Intel® Omni-Path Architecture.
- Intel® Data Analytics Acceleration Library:
  - o Added Deep Learning feature extensions.
  - o Added API extensions for data parallelism scheme.
- Intel® Inspector:
  - o Support for C++17 std::shared_mutex.
- Intel® Integrated Performance Primitives:
  - o Introduced support for Intel® Xeon Phi™ processor x200 leverage boot mode in examples.
  - o Added new functions in ZLIB to support user-defined Huffman tables.
- Intel® Math Kernel Library:
  - o Intel® AVX-512 code is dispatched by default on Intel® Xeon® processors.
  - o Added support for Intel Threading Building Blocks in various functions.
- Intel® MPI Library:
  - o Added a new environment variable, I_MPI_MEMORY_LOCK, to prevent memory swapping to the hard drive.
- Intel Threading Building Blocks:
  - o Added template class gfx_factory to the flow graph API.
  - o Fixed a possible deadlock caused by missed wakeup signals in task_arena::execute().
- Intel® Trace Analyzer and Collector:
  - o Improved the color changing scheme.
  - o Added Pcontrol support in MPI Performance Snapshot.
  - o Added idle time per function in MPI Performance Snapshot.

- Intel® VTune™ Amplifier XE:
  - Added support for mixed Python and native code in Locks and Waits analysis.
  - Added support for performance analysis of a guest Linux* operating system via Kernel-based Virtual Machine (KVM) from a Linux* host system with the KVM Guest OS option.
  - Enriched HPC Performance Characterization.

Changes since Intel® Parallel Studio XE 2017:
- All components updated to current versions.
- Japanese localization added for most components.
- Default installation includes components for 32-bit targets on Linux*.
- Intel® Advisor:
  - Extended recommendations for virtual methods in vectorized loops.
- Intel® C/C++ Compiler:
  - Bug fixes.
- Intel® Cluster Checker:
  - Added Intel® Scalable System Framework support.
  - Added additional support for Intel® Xeon Phi™ Product Family x200 processors.
  - Removed heartbeat functionality.
- Intel® Data Analytics Acceleration Library:
  - Added distributed neural network training.
  - Added KNN algorithm for batch computing mode.
  - Added min-max normalization.
- Intel® Integrated Performance Primitives:
  - Added functions for the finite field GF(p) arithmetic, and the elliptic curves over the finite field GF(p)
  - Added ippsECCPBindGxyTblStd functions that allow to control memory size for the elliptic curves over GF(p).
- Intel® Math Kernel Library:
  - Added support of non-square cores of convolution.
  - Improved performance of ?GETRF, ?GETRS and ?GETRI for very small matrices via MKL_DIRECT_CALL.
  - Improved single thread SGEMM/DGEMM performance on Intel® Advanced Vector Extensions 2 (Intel® AVX2), Intel® Advanced Vector Extensions 512 (Intel® AVX-512), and Intel® Xeon® for Intel® Many Integrated Core Architecture.
- Intel® MPI Library:
  - PMI-2 support for SLURM*.
  - Deprecating support for cross-OS launches.
  - Deprecating support for DAPL, TMI, and OFA fabrics.
- Intel Threading Building Blocks:
  - Bug fixes.
- Intel® Trace Analyzer and Collector:
  - Introduced mouse wheel zooming support for timelines.
  - MPI Performance Snapshot adds a new diagram Node-to-Node Data Transfers.

- o MPI Performance Snapshot adds support for non-MPI applications.
- Intel® VTune™ Amplifier XE:
  - o Support for locator hardware event metrics for the General Exploration analysis results in the Source/Assembly view that enable you to filter the data by a metric of interest and identify performance-critical code lines/instructions.
  - o Summary view of the General Exploration analysis extended to explicitly display measure for the hardware metrics: Clockticks vs. Pipeline Slots.
  - o Command line summary report for the HPC Performance Characterization analysis extended to show metrics for CPU, Memory, and FPU performance aspects including issue descriptions for metrics that exceed the predefined threshold.

Changes since Intel® Parallel Studio XE 2016 Update 3:
- All components updated to current versions.
- Installation performance improvements for Windows*.
- Target architecture and component selection GUI installation dialogs are merged.
- Default environment variable settings cleaned up.
- Intel® C/C++ Compiler and Intel® Fortran Compiler:
  - o Added additional OpenMP support.
  - o Added support for more C++14 features.
  - o Added support for more C11 features.
- Intel® Cluster Checker:
  - o Added support for Intel® Xeon Phi™ Product Family x200 processors.
  - o Added support for the Lustre* file system.
  - o Databases from previous versions of the product are incompatible with version 2017 due to database schema changes.
- Intel® MPI Library:
  - o Support for the MPI-3.1 standard.
  - o New topology-aware collective communication algorithms.
  - o New process startup method (I_MPI_HYDRA_PREFORK).
- Intel® Trace Analyzer and Collector:
  - o Introduced an OTF2 to STF converter oft2-to-stf (preview feature).
  - o Introduced a new library for collecting MPI load imbalance (libVTim).
  - o Introduced a new API function VT_registerprefixed.
- Intel® Inspector:
  - o Fix for suppression file usage when run in command line mode.
  - o Added support for C++11 synchronization primitives during threading analysis.
  - o Variable name detection for threading analysis (global, static, and stack variables).
- Intel® Advisor:
  - o Full support of Intel® Xeon Phi™ Processor (code name Knights Landing) for all analysis types.

- o Precise FLOPS metric collection that considers usage of masked operations. FLOPS metrics are collected along with the Trip Counts analysis when enabled in project properties.
  - o Multiple improvements in Vector Advisor functionality.
- Intel Threading Building Blocks:
  - o The static_partitioner class is now a fully supported feature.
  - o The async_node class is now a fully supported feature.
  - o Improved robustness of concurrent_bounded_queue::abort() in case of simultaneous push and pop operations.
- Intel® Data Analytics Acceleration Library:
  - o Added support of a new Neural Network layer "softmax with cross-entropy loss".
  - o Added quality metrics for linear regression.
  - o Introduced support for user-defined memory allocation to store layer results in Neural Networks.
- Intel® Math Kernel Library:
  - o Introduced optimizations for the Intel® Xeon Phi™ Processor x200 (codename Knights Landing (KNL)) self-boot platform for Windows*
  - o Included the latest LAPACK v3.6 enhancements.
- Intel® Integrated Performance Primitives:
  - o Added new APIs to support 64-bit data length in the image and signal processing domains.
  - o Added integration wrappers for some image processing and computer vision functions.
- Intel® VTune™ Amplifier XE:
  - o Support for Intel® Xeon Phi™ Processor (codenamed Knights Landing) and Intel® Xeon® Processor E5 v4 Family (formerly codenamed Broadwell EP).
  - o Disk Input and Output analysis that monitors utilization of the disk subsystem, CPU and PCIe buses.
  - o Improvements to Memory Access analysis, HPC workloads profiling, and GPU analysis.
- Tutorials and sample codes have been removed from installation packages and are now available online at https://software.intel.com/en-us/product-code-samples.
- Intel® Integrated Performance Primitives, Intel® Data Analytics Acceleration Library, and Intel Threading Building Blocks have been removed from Fortran language only editions.
- The --download-only command line option is no longer recognized. The online installer now provides a selectable option to download installation packages.
- Support removed for the following:
  - o Installation on IA-32 architecture host.
  - o Red Hat Enterprise Linux* 5.
  - o Microsoft Visual Studio* 2010.

4   System Requirements

4.1   Processor Requirements

Systems based on Intel® 64 architecture:

- Intel® Core™ processor family or higher
- Intel® Xeon® E5 v5 processor families recommended
- Intel® Xeon® E7 v5 processor families recommended

NOTE: It is assumed that the processors listed above are configured into homogeneous clusters. For Windows* OS, only processors based on the Intel® 64 architecture are supported.

4.2   Disk Space Requirements

12 GB of disk space (minimum) on a standard installation. Cluster installations require an additional 4 GB of disk space.

NOTE: During the installation process, the installer may need up to 12 GB of additional temporary disk storage to manage the intermediate installation files.

4.3   Operating System Requirements

The operating systems listed below are supported by all components on Intel® 64 Architecture. Individual components may support additional operating systems and architecture configurations. See the individual component release notes for full details.

- Debian* 7.x, 8.x
- Fedora* 24, 25
- Red Hat Enterprise Linux* 6.x, 7.x
- SUSE Linux Enterprise Server* 11.x, 12.x
- Ubuntu* 14.04, 16.04
- CentOS* 6.x, 7.x
- Microsoft* Windows* 7, 8.x, 10
- Microsoft* Windows* Server 2008, 2008 R2, 2012, 2012 R2, 2016

The Intel® MPI Library and Intel® Trace Analyzer and Collector are supported on Intel® Cluster Ready systems and HPC versions of the listed versions of Microsoft* Windows* Server. These components are not supported on Ubuntu non-LTS systems.

IA-32 support has been removed from the Intel® MPI Library and Intel® Trace Analyzer and Collector. Installation on IA-32 hosts is no longer supported by any components. Runtime libraries other than the Intel® MPI Library are still supported on IA-32 hosts.

4.4   Memory Requirements

2 GB RAM (minimum)

4.5   Additional Software Requirements

Development for a 32-bit target on a 64-bit host may require optional library components (ia32-libs, lib32gcc1, lib32stdc++6, libc6-dev-i386, gcc-multilib, g++-multilib) to be installed from your Linux distribution.

On Microsoft Windows* OS, the Intel® C/C++ Compiler and Intel® Visual Fortran Compiler require a version of Microsoft Visual Studio* to be installed. The following versions are currently supported:
- Microsoft Visual Studio* 2017, 2015, 2013, 2012
- Microsoft Visual Studio Express* (only for command line compilation)

5   Installation Notes

For instructions on installing and uninstalling the Intel® Parallel Studio XE on Linux* OS and Windows* OS, see the Installation Guide (Install_Guide.pdf). The installation of the product requires a valid license file or serial number.

5.1   Online Installation

The electronic installation package for Intel® Parallel Studio XE now offers as an alternative a smaller installation package that dynamically downloads and then installs packages selected to be installed. This requires a working internet connection and potentially a proxy setting if you are behind an internet proxy. Full packages are provided alongside where you download this online install package if a working internet connection is not available. The online installer may be downloaded and saved as an executable file which can then be launched from the command line.

5.2   Silent Install

For information on automated or "silent" install capability, please see http://intel.ly/nKrzhv.

5.2.1   Support of Non-Interactive Custom Installation

Intel® Parallel Studio XE 2017 supports the saving of user install choices during an 'interactive' install in a configuration file that can then be used for silent installs. This configuration file is created when the following option is used from the command line install:
- `--duplicate=config_file_name`: it specifies the configuration file name. If full path file name is specified, the "`--download-dir`" is ignored and the installable package will be created under the directory where configuration file is.
- `--download-dir=dir_name`: optional, it specifies where the configuration file will be created. If this option is omitted, the installation package and the configuration file will be created under the default download directory:
  ```
  Windows: %Program Files%\Intel\Download\<package_id>
  Linux: /tmp/<UID>/<package_id>
  ```

For example: `parallel_studio_xe_<version>_setup.exe --duplicate=ic16_install_config.ini  --download-dir="C:\temp\custom_pkg_ic16"`
The configuration file and installable package will be created under "`C:\temp\custom_pkg_ic16`".

5.3 Using a License Server

If you have purchased a "floating" license, see http://intel.ly/pjGfwC for information on how to install using a license file or license server. This article also provides a source for the Intel® License Server that can be installed on any of a wide variety of systems.

6   Documentation

The documentation index file getstart*.htm provides more information about Intel® Parallel Studio XE.

Note: Some hyperlinks in HTML documents may not work when you use Internet Explorer*. Try using another browser, such as Chrome* or Firefox*, or right-click the link, select **Copy shortcut**, and paste the link into a new Internet Explorer* window.

7   Issues and Limitations

1. When installing Intel® Parallel Studio XE 2017 Update 2 in Windows* as a user with Japanese characters in the username and who is a member of the "Administrators" group, the following error will be displayed:

    "Runtime Error! Program: C:\ProgramData\FLEXnet\Connect\11\agent.exe abnormal program termination"

    Clicking OK still leads to correct installation despite the error message.

2. There have been situations where during the installation process, `/tmp` has been filled up. We recommend that you have **at least 12 GB of free space** in `/tmp` when installing the Intel® Parallel Studio XE. Also, the installer script install.sh has the command-line options:

    `-t [FOLDER]`

    or

    `--tmp-dir [FOLDER]`

    where `[FOLDER]` is a directory path, which can direct the use of intermediate storage to another disk partition referenced by `[FOLDER]`. `[FOLDER]` should be a non-shared

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storage location on each node of the cluster. Note that *[FOLDER]* should also contain **at least 12 GB of free space**.

3. On Linux* OS, if any software component of the Intel® Parallel Studio XE is detected as pre-installed on the head node, that software component will not be processed by the installer. There is a similar problem on Windows* OS in the 'Modify' mode. For Windows* OS, if some software component of the Intel® Parallel Studio XE is pre-installed on the head node using the installer, that software component will not be installed on the compute nodes of the cluster. For either Linux* OS or Windows* OS, if you already installed some of the software components only on the head node, and you want to install them on the other nodes using the installer, you need to uninstall such components from the head node manually before starting the installer.

4. If you use the Intel® MPI Library command `mpirun` with the Intel® Inspector as follows:

```
mpirun -f ./mpd.hosts -nolocal -ppn 1 -n 4 inspxe-cl -c ti2 -r
r003_{mpirank} `pwd`/inspxe_mpirank.exe inspxe-cl -c mi2 -r
r000_{mpirank} `pwd`/inspxe_mpirank.exe
```

where the above command line is collecting two types of instrumentation data (`ti2` and `mi2`), and you encounter a run-time error that may look as follows:

```
HYDU_create_process (./utils/launch/launch.c:94): execvp error on
file r000_{mpirank} (No such file or directory)
```

In this case, you can use the `mpiexec` command in lieu of the `mpirun` command:

```
mpiexec -nolocal -ppn 1 -n 4 inspxe-cl -c ti2 -r
/shared/cluster_common/inspector_test/cluster/r003_{mpirank}
`pwd`/inspxe_mpirank.exe inspxe-cl -c mi2 -r r000_{mpirank}
inspxe_mpirank.exe
```

where `/shared/cluster_common/inspector_test/cluster/r003_{mpirank}` is a shared path for collecting `ti2` instrumentation data.

Alternatively, you can create a Bourne* Shell or C Shell script that contains instrumentation information that may look as follows:

```
inspxe-cl -c ti2 -r
/shared/cluster_common/inspector_test/cluster/r003_{mpirank}
`pwd`/inspxe_mpirank.exe inspxe-cl -c mi2 -r r000_{mpirank}
inspxe_mpirank.exe
```

Using Bourne* Shell syntax, the script might be called `run.sh`, where it is used with the `mpirun` command in the following manner:

```
mpirun -ppn 1 -n 4 ./run.sh
```

You also need to remove the `-nolocal` command-line option because the `-f <hosts_file>` option was not specified, and therefore all processes are started locally.

5. Intel® Parallel Studio XE for Windows* OS requires **the creation and use of symbolic links for installation of the Intel® software product components**. If you have a File Allocation Table (FAT32) file system deployed on your Windows* OS platform, these symbolic links cannot be created and the integrity of the Intel® Parallel Studio XE installation is compromised.

6. For Intel® MIC Architecture, Intel® MPI Library supports only Intel® Xeon Phi™ Coprocessor.

   This release of the Intel® MPI Library for Linux* OS does not support the MPD process manager for Intel® Xeon Phi™ Coprocessor.

   Intel® MPI Library for Linux* OS supports multiple DAPL* providers for communication between the host and the Intel® Xeon Phi™ Coprocessor and between several Intel® Xeon Phi™ Coprocessors inside one node.

   Currently supported providers are DAPL over InfiniBand* Architecture and DAPL over Intel® Symmetric Communication Interface (Intel® SCI). This feature requires using symbolic names in the host file.

7. Intel® Software Manager will always install to either `/opt` or `$HOME` on Linux* OS even if a custom installation path is chosen. This can slow installation when the destination folder is a slow NFS shared folder, even if locally hosted.

8. Installation of the Fortran-only Integrated Development Environment (IDE) based on Microsoft Visual Studio Shell 2013* may cause the system to reboot. The reboot is a rare condition, but it has been observed on Windows 8* systems which needed to have Windows updates applied. Normally this can be recovered from by installing the Windows updates and starting the installation again.

9. In some situations, if a Windows OS computer has been updated but not restarted and the Visual Studio Shell is to be installed, Intel® Parallel Studio XE installation will fail with the error message "Intel(R) Parallel Studio XE 2017 Cluster Edition for Windows* Setup Wizard ended prematurely because of an error(s)." The failing module is vs_isoshell.exe. To work around this issue, restart your computer and repeat the installation process.

10. Intel® Parallel Studio XE installation will fail if the Visual Studio Shell is to be installed on earlier versions of Windows 10 with Program Compatibility Mode on. Updating

Windows 10 resolves this issue, as Visual Studio 2013 Shell is unable to be installed on some earlier versions of Windows 10.

11. A known compiler defect with translating the /ZI option inhibits generation of debug symbol information necessary for debugging offload code targeting the Intel® Xeon Phi™ coprocessor. The lack of debug symbol information can lead to unexpected debugger behavior for offloaded code, such as not stopping at breakpoints, or an inability to inspect details of certain program variables. Other debugger abnormalities may also occur in absence of this debug symbol information.

    This issue only occurs with use of the /ZI option on the compiler command-line or under Microsoft Visual Studio 2015* under the setting for **Properties > C/C++ > General > Debug Information Format**. To avoid this issue use /Zi for this property setting or on the compiler command-line. Other supported versions of Microsoft Visual Studio* are unaffected.

12. The compiler option /ZI is not translated properly for compilation of offloaded code and generates a compile-time warning, `icl: warning #10373: option '/ZI' does not match with a Linux option`

    This warning should not be ignored due to impacts on debugging offloaded code. Use the /Zi option as an alternative to avoid the warning and enable generating debug symbol information necessary for debugging offloaded code. Under Microsoft Visual Studio 2015*, refer to the setting under **Properties > C/C++ > General > Debug Information Format**.

13. Intel® MPI Library 2017 Update 1 may hang at initialization on a Windows* platform. If this occurs, either set I_MPI_COLL_INTRANODE=pt2pt or run with administrative privileges to work around the hang.

8   Technical Support

Your feedback is very important to us. To receive technical support for the tools provided in this product and technical information including FAQ's and product updates, you are encouraged to register your product at the Intel® Software Development Products Registration Center.

NOTE: Registering for support varies for release product or pre-release products (alpha, beta, etc.) – only released software products have support web pages at http://software.intel.com/sites/support/.

To register for an account, please visit the Intel® Software Development Products Registration Center website at http://www.intel.com/software/products/registrationcenter/index.htm. If

you have forgotten your password, please follow the instructions on the login page for forgotten password.

Product support requests can be submitted via the Online Service Center at http://www.intel.com/supporttickets. Visit our Frequently Asked Questions page for Online Service Center assistance at https://software.intel.com/en-us/faq/online-service-center. When submitting a support request, please select the appropriate component tool unless your request is related to the entire suite.

9   Attributions for Intel® Math Kernel Library

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.

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