

Intel® System Studio 2016 Update 1 for Windows* Installation Guide and Release Notes

Installation Guide and Release Notes for Windows* Host and Windows* target

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1 Introduction

This document provides a brief overview of the Intel® System Studio 2016 for Windows* and provides pointers to where you can find additional product information, technical support, articles and whitepapers.

It also explains how to install the Intel® System Studio product. Installation is a multi-step process and may contain components for the development host and the development target. Please read this document in its entirety before beginning and follow the steps in sequence.

The Intel® System Studio 2016 for Windows* consists of multiple components for developing, tuning and deploying system and application code targeted towards embedded, Intelligent Systems, Internet of Things and mobile designs.

It is intended for use on Microsoft* Windows* host operating systems with the intention of deploying build results and doing sampling analysis on Microsoft* Windows* and Microsoft* Windows* Embedded target.

The tool suite is targeting development for embedded intelligent system platforms ranging from Intel® Atom™ Processor based low-power embedded platforms to 3rd, 4th, 5th and 6th generation Intel® Core™ microarchitecture based designs. Please refer to the Intel® System Studio User's Guide for guidance on how to apply Intel® System Studio to the various use case scenarios that are available with this versatile product.

Due to the nature of this comprehensive integrated software development tools solution, different Intel® System Studio components may be covered by different licenses. Please see the licenses included in the distribution as well as the [Disclaimer and Legal Information](#) section of these release notes for details.

2 What's New

Intel® System Studio 2016 Update 1 for Windows*

1. Intel® C++ Compiler:
 - Enhancements for offloading to Intel® Graphics Technology
 - Support for Windows* 10
 - Support for Microsoft Visual Studio* 2015
2. Intel® Energy Profiler (SoC Watch):
 - Added support for collection of gfx-cstate and ddr-bw metrics on platforms based on Intel® Core™ architecture.
3. Intel® System Debugger:
 - New options for the debugger's "Restart" command
 - System Trace Viewer:
 - New "Event Distribution View" feature
 - Several improvements in the Trace Viewer GUI.

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. This option, the Intel® Software Improvement Program, is not enabled by default – you can opt-in during installation or at a later time, and may opt-out at any time. For more information please see <http://intel.ly/SoftwareImprovementProgram>.

4 Product Contents

The product contains the following components

1. Intel® C++ Compiler 16.0 Update 1 (64-bit host only)
2. Intel® Integrated Performance Primitives 9.0 Update 1
3. Intel® Math Kernel Library 11.3 Update 1
4. Intel® Threading Building Blocks 4.4 Update 1
5. Intel® Graphics Performance Analyzers 2015 R3
6. Intel® VTune™ Amplifier 2016 Update 1 for Systems with Intel® Energy Profiler
7. Intel® Inspector 2016 for Systems
8. Intel® System Debugger 2016 (64-bit host only)
 - 8.1. Intel® System Debugger notification module xdbntf.ko (provided under GNU General Public License v2)
9. OpenOCD 0.8.0 library (provided under GNU General Public License v2+) (64-bit host only)
 - 9.1. OpenOCD 0.8.0 source (provided under GNU General Public License v2+)

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 optimizations 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 User and Reference Guides for more information regarding the specific instruction sets covered by this notice.

Notice revision #20110804

5 Getting Started

Please refer to the Getting Started Guide and Intel® System Studio User's Guide for guidance on Intel® System Studio use cases and supported usage models.

The following paths are given relative to the installation directory <install-dir>. The default installation directory is C:\Program Files (x86)\IntelSWTools unless indicated differently.

Intel® System Studio Installation Notes

Intel® System Studio User's Guide

- <install-dir>\documentation_2016\en\iss2016\iss_ug.pdf

Intel® System Studio Getting Started Guide

- <install-dir>\documentation_2016\en\iss2016\iss_gsg_win_win.htm

6 Technical Support and Documentation

6.1 Release Notes Location

The release notes and getting started guide for the tools components making up the Intel® System Studio product can be found at the following locations after installation is complete.

Intel® System Studio Release Notes and Installation Guide

- <install-dir>\documentation_2016\en\iss2016\w-all-release-install.pdf

Intel® C++ Compiler

- <install-dir>\documentation_2016\en\compiler_c\ReleaseNotes_ISS_Compiler.pdf

Intel® Integrated Performance Primitives

- <install-dir>\documentation_2016\en\ipp\iss2016\ReleaseNotes.htm

Intel® Math Kernel Library

- <install-dir>\documentation_2016\en\mkl\iss2016\ReleaseNotes.htm

Intel® Threading Building Blocks

- <install-dir>\documentation_2016\en\tbb\common\Release_Notes.txt

Intel® VTune™ Amplifier

- <install-dir>\Vtune Amplifier for Systems\documentation\en\release_notes_amplifier_for_systems_windows.pdf

Intel® Energy Profiler

- <install-dir>\Vtune Amplifier for Systems\documentation\en\Energy_Profiler_Guide.pdf

Intel® Inspector

- <install-dir>\Inspector for Systems\documentation\en\Release_Notes_Inspector_Windows.pdf

Intel® VTune™ Amplifier Sampling Enabling Product

- <install-dir>\Vtune Amplifier for Systems\documentation\en\SEP_Users_Guide.pdf

Intel® System Studio System Analyzer

- <http://software.intel.com/en-us/articles/intel-gpa-online-help>

6.2 Article & Whitepaper Locations

Intel® System Studio Tutorials and Samples

- <install-dir>\documentation_2016\en\iss2016\samples-and-tutorials.html

Intel® System Studio Articles and Whitepapers

- <https://software.intel.com/en-us/articles/intel-system-studio-articles>
- For a list of all available articles, whitepapers and related resources please visit the Intel® System Studio product page at <http://software.intel.com/en-us/intel-system-studio> and look at the Support tab.

6.3 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.

7 System Requirements

7.1 Supported Host Platforms

One of the following operation distributions (this is the list of distributions supported by all components; other distributions may or may not work and are not recommended - please refer to Technical Support if you have questions).

Windows* 7, 8.x, 10

Intel® Inspector for Systems does not support Windows 10* or Microsoft Visual Studio 2015* in the initial release of Intel® Systems Studio 2016. Support is planned for Update 1 of the component.

Individual Intel® System Studio 2016 components may support additional distributions. See the [individual component's installation guide and release notes](#) after you ran the installer for the tool suite distribution

```
system_studio_2016.1.xxx_windows_target.exe
```

or

```
system_studio_2016.1.xxx_windows_target_online.exe
```

for details.

7.2 Microsoft* Visual Studio* Integration

The prerequisite for successful Microsoft* Visual Studio* integration and use of use the Microsoft Visual Studio* development environment or command-line tools to build IA-32 or Intel® 64 architecture applications, is the presence of one of:

- Microsoft Visual Studio 2015*
- Microsoft Visual Studio 2013* Professional Edition (or higher edition) with C++ component installed
- Microsoft Visual Studio 2012* Professional Edition (or higher edition) with C++ component installed
- Microsoft Visual Studio 2010* Professional Edition (or higher edition) with C++ and “X64 Compiler and Tools” components installed

To use command-line tools only to build IA-32 architecture applications, one of:

- Microsoft Visual C++ Express 2013 for Windows Desktop*
- Microsoft Visual C++ Express 2012 for Windows Desktop*
- Microsoft Visual C++ 2010* Express Edition

To use command-line tools only to build Intel® 64 architecture applications, one of:

- Microsoft Visual C++ Express 2013 for Windows Desktop*

- Microsoft Visual C++ Express 2012 for Windows Desktop*
- Microsoft Windows* Software Development Kit for Windows 8* or 8.1*

7.3 Hardware Requirements

- IA32 or Intel® 64 architecture based host computer 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
- Development target platform based on the Intel® Atom™ processor Z5xx, N4xx, N5xx, D5xx, E6xx, N2xxx, D2xxx, Z2xxx, Z3xxx, E3xxx, C2xxx or Intel® Atom™ processor CE4xxx, CE53xx and the Intel® Puma™ 6 Media Gateway
- Alternatively development platform based on 2nd, 3rd, 4th, 5th or 6th generation Intel® Core™ processor.
- Xeon® processors based on 2nd, 3rd, 4th or 5th generation Intel® Core™ architecture.

7.4 Host Prerequisites and Resource Requirements

7.4.1 Host Space Requirements by Component

	Minimum RAM	Recommended RAM	Disk Space
Intel® System Studio	2Gb	4Gb	5Gb
Intel® C++ Compiler	1Gb	2Gb	2.5Gb
Intel® Integrated Performance Primitives	1Gb	4Gb	1-2Gb
Intel® Math Kernel Library	1Gb	4Gb	2.3Gb
Intel® VTune™ Amplifier for Systems	2Gb	4Gb	650Mb
Intel® Inspector for Systems	2Gb	4Gb	350Mb
Intel® Threading Building Blocks	1Gb	2Gb	300Mb

7.4.2 Intel® Integrated Performance Primitives (Intel® IPP) Details

Intel® Integrated Performance Primitives (Intel® IPP) for IA-32 Hardware Requirements:

- 1800MB of free hard disk space, plus an additional 400MB during installation for download and temporary files.

Intel® Integrated Performance Primitives (Intel® IPP) for Intel® 64 Hardware Requirements:

- 1900MB of free hard disk space, plus an additional 700MB during installation for download and temporary files.

7.5 Target Software Requirements

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

- Microsoft Windows* 7, 8.x, 10
- Microsoft Windows* Embedded Standard 7, 8.x, 10

Note:

The level of target OS support by a specific Intel® System Studio component may vary.

7.6 Target Prerequisites and Resource Requirements

7.6.1 Target Space Requirement by Component

	Minimum RAM	Dependencies	Disk Space
Intel® C++ Compiler	application dependent	Linux kernel 1.26.18 or newer glibs-2.5 or compatible libgcc-4.1.2 or compatible libstdc++-3.4.7 or compatible	13Mb (IA-32) 15Mb (Intel® 64)
Intel® VTune™ Amplifier CLI	4Gb	Specific kernel configuration reqs. Details below.	200Mb
Intel® VTune™ Amplifier SEP	(# logical cores+2) Mb	Specific kernel configuration reqs. Details below.	8Mb
SoC Watch	(# logical cores+2) Mb	Specific kernel configuration reqs. See SoCWatch documentation	8Mb

7.7 Intel® Graphics Technology development specific requirements

Up-to-date information on hardware, operating system and driver requirements for offloading computations to the integrated processor graphics can be found on the following page:

<https://software.intel.com/en-us/articles/getting-started-with-compute-offload-to-intel-graphics-technology>

8 Installation Notes

8.1 Installing the Tool Suite

The installation process as well as prerequisites for using the different Intel® System Studio components are documented online and can be found here:

<https://software.intel.com/en-us/articles/system-studio-install-prerequisites>

The default base installation, in the following referred to as <install-dir> directory is:

```
C:\Program Files (x86)\IntelSWTools
```

Important Note: As indicated in the installation process, Intel® System Studio 2015 customers need to upgrade their license either by entering an Intel® System Studio **2016** serial number directly or by obtaining the new license file from Intel® Registration Center. More information on this can be found on the following page:

<https://software.intel.com/en-us/articles/required-license-upgrade-for-intel-system-studio-2016-and-intel-parallel-studio-xe-2016>

8.2 Installation Directory Structure

Intel® System Studio for Windows* 2016 installs components which are unique to System Studio into <install-dir>\system_studio_for_windows_2016.1.xxx and components which share subcomponents (such as documentation) with other Intel® Software Development Products into <install-dir>.

The Intel® System Studio for Windows* 2016 installation directory contains tools and directories as well as links to shared components into the parent directory for Intel® C++ Compiler, Intel® Integrated Performance Primitives, Intel® Math Kernel Library, Intel® Threading Building Blocks, Intel® System Debugger, Intel® VTune™ Amplifier and Intel® Inspector respectively as follows:

- <install-dir>\system_studio_2016.1.xxx\
 - <install-dir>\system_studio_2016.1.xxx\compilers_and_libraries_2016
 - <install-dir>\system_studio_2016.1.xxx\debugger
 - <install-dir>\system_studio_2016.1.xxx\documentation_2016
 - <install-dir>\system_studio_2016.1.xxx\GPA
 - <install-dir>\system_studio_2016.1.xxx\GraphicsFrameAnalyzerOGL
 - <install-dir>\system_studio_2016.1.xxx\ide_support_2016
 - <install-dir>\system_studio_2016.1.xxx\Inspector for Systems
 - <install-dir>\system_studio_2016.1.xxx\licensing
 - <install-dir>\system_studio_2016.1.xxx\samples_2016
 - <install-dir>\system_studio_2016.1.xxx\VTune Amplifier for Systems

Intel® Software Development Products Common Components Directory with Links from System Studio

- <install-dir>\compilers_and_libraries
- <install-dir>\compilers_and_libraries_2016
- <install-dir>\compilers_and_libraries_2016.x.xxx
- <install-dir>\debugger_2016
- <install-dir>\documentation_2016
- <install-dir>\ide_support_2016
- <install-dir>\Inspector 2016 for Systems
- <install-dir>\Inspector for Systems
- <install-dir>\samples_2016
- <install-dir>\SoCWatch
- <install-dir>\VTune Amplifier 2016 for Systems
- <install-dir>\VTune Amplifier for Systems

Note: Please be aware that the presence of a Microsoft* Visual Studio* 2010 – 2015 installation is required for successful product installation and usage.

9 Issues and Limitations

9.1 Known Issues and Limitations

For known issues of individual Intel® System Studio components please refer to the individual component release notes. Their location in the installed product can be found in chapter 2:

[Technical Support and Documentation](#)

9.1.1 MSBuild.exe should be closed before installation

During installation/uninstallation of Intel® System Studio 2016 for Windows you may get the following dialog:

The following application should be closed before continuing the install:

- MSBuild.exe

In order to continue installation/uninstallation, please, close MSBuild.exe process and click “Retry” button.

In order to avoid this situation, please, make sure MSBuild.exe process is closed before starting the installation/uninstallation of Intel® System Studio 2016 for Windows*.

9.1.2 Running online-installer behind proxy server fails

Running online-installer behind proxy server produces error: "Connection to the IRC site cannot be established". Please see the [Installation Notes](#) for more details

9.1.3 No coexistence of Intel® Parallel Studio XE 2015 and Intel® System Studio 2016 Visual Studio* Integration

If Intel® System Studio for Windows* 2016 are installed on the same machine as Intel® Parallel Studio XE 2015, then the following issues may be observed:

1. Visual Studio* displays dialog windows with error message that package is not loaded correctly.
2. Missing “Use Intel® C++” menu item in “Project -> Intel Compiler” context menu
3. Intel® C++ Compiler options do not load correctly in “Tools -> Options -> Intel Compilers and Tools” dialog.

The workaround is the following:

1. Open Microsoft Windows* Explorer as Administrator and go to “<Visual Studio Install Directory>\Common7\IDE\Extensions\Intel\C++”
2. Copy *.ISS.pkgdef files to *.pkgdef files (overwrite existing .pkgdef files):

IntelPkg.<ISS>.pkgdef -> IntelPkg.pkgdef

IntelLibOptPkg.<ISS>.pkgdef -> IntelLibOptPkg.pkgdef

IntelCppOptPkg.<ISS>.pkgdef -> IntelCppOptPkg.pkgdef

ICProjConvPkg.<ISS>.pkgdef -> ICProjConvPkg.pkgdef

3. Go to <Visual Studio* Install Directory>\Common7\IDE\Extensions\Intel\Common

4. Copy *.ISS.pkgdef to *.pkgdef files (overwrite existing .pkgdef files):

- Intel.CommonTools.<ISS>.pkgdef -> Intel.CommonTools.pkgdef
- Intel.CommonTools.OptPkg.<ISS>.pkgdef -> Intel.CommonTools.OptPkg.pkgdef

5. Open Developer command prompt for selected Visual Studio*:

“Start -> All Programs -> Microsoft Visual Studio <2010|2012|2013|2015> -> Visual Studio* Tools”

6. On command prompt type: devenv /setup

9.1.4 Graphics Analysis Tools installation failure on Windows* host with script custom actions

The installation of Intel® System Studio System Analyzer, Frame Analyzer and Platform Analyzer may fail on rare occasions with the following Windows* error message:

1. 2738, Could not access VBScript run time for custom action [2].
2. 2739, Could not access JScript run time for custom action [2].

If this error message occurs, the installation can be completed after applying the following steps:

- Check that vbscript.dll and jscript.dll aren't registered in HKEY_CURRENT_USER (HKCU), checking for the registry keys below.
- VBScript, HKCU\SOFTWARE\Classes\CLSID\{ B54F3741-5B07-11CF-A4B0-00AA004A55E8}
- JScript, HKCU\SOFTWARE\Classes\CLSID\{ F414C260-6AC0-11CF-B6D1-00AA00BBBB58}
- JScript, HKCU\SOFTWARE\Classes\CLSID\{ F414C261-6AC0-11CF-B6D1-00AA00BBBB58}
- JScript, HKCU\SOFTWARE\Classes\CLSID\{ F414C262-6AC0-11CF-B6D1-00AA00BBBB58}
- Remove these keys if they exist in HKEY_CURRENT_USER.

9.1.5 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.

10 Attributions

This product includes software developed at:

The Apache Software Foundation (<http://www.apache.org>).

Portions of this software were originally based on the following:

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- the W3C consortium (<http://www.w3c.org>) ,
- the SAX project (<http://www.saxproject.org>)
- voluntary contributions made by Paul Eng on behalf of the Apache Software Foundation that were originally developed at iClick, Inc., software copyright (c) 1999.

This product includes updcrc macro,
Satchell Evaluations and Chuck Forsberg.
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This product includes software developed by the MX4J project
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This product includes ICU 1.8.1 and later.
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This product includes software from the book
"Linux Device Drivers" by Alessandro Rubini and Jonathan Corbet,
published by O'Reilly & Associates.

This product includes hashtab.c.
Bob Jenkins, 1996.

11 Disclaimer and Legal Information

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Contact your local Intel sales office or your distributor to obtain the latest specifications and before placing your product order.

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<http://www.intel.com/design/literature.htm>

Intel processor numbers are not a measure of performance. Processor numbers differentiate features within each processor family, not across different processor families. Go to:

http://www.intel.com/products/processor_number/

MPEG-1, MPEG-2, MPEG-4, H.261, H.263, H.264, MP3, DV, VC-1, MJPEG, AC3, AAC, G.711, G.722, G.722.1, G.722.2, AMRWB, Extended AMRWB (AMRWB+), G.167, G.168, G.169, G.723.1, G.726, G.728, G.729, G.729.1, GSM AMR, GSM FR are international standards promoted by ISO, IEC, ITU, ETSI, 3GPP and other organizations. Implementations of these standards, or the standard enabled platforms may require licenses from various entities, including Intel Corporation.

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