

OpenCL™ Drivers and Runtimes for Intel® Architecture

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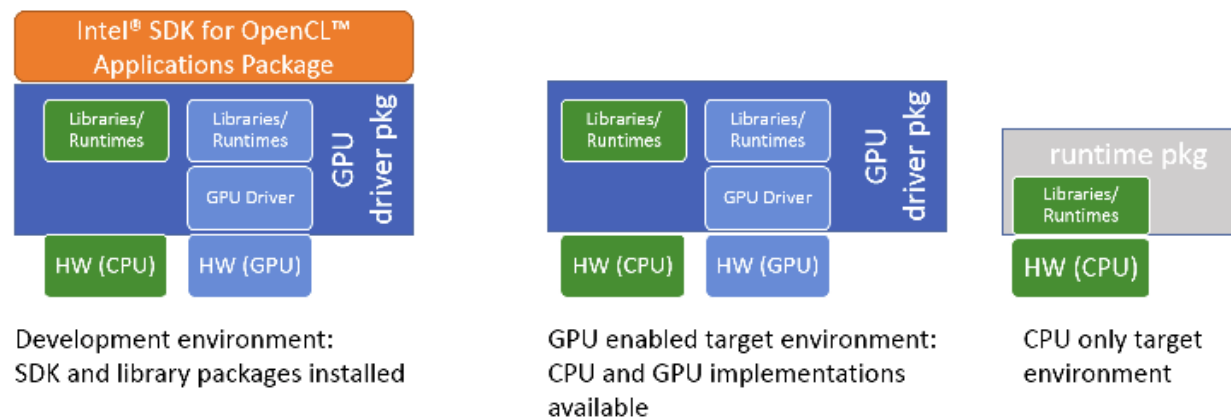
By downloading a package from this page, you accept the [End User License Agreement \(/file/489997/download\)](#).

Installation has two parts:

1. Intel® SDK for OpenCL™ Applications Package
2. Driver and library(runtime) packages

The SDK includes components to develop applications: IDE integration, offline compiler, debugger, and other tools. Usually on a development machine the driver/runtime package is also installed for testing. For deployment you can pick the package that best matches the target environment.

The illustration below shows some example install configurations.



SDK Packages

Please note: A GPU/CPU driver package or CPU-only runtime package is required in addition to the SDK to execute applications

Standalone:

- [Intel® SDK for OpenCL™ Applications 2016 R2 for Linux* \(64-bit\)](#)
- [Intel® SDK for OpenCL™ Applications 2016 R2 for Windows* \(64-bit\)](#) (assumes Windows* graphics driver installed)

Suite: (also includes driver and Intel® Media SDK)

- [Intel® Media Server Studio](https://software.intel.com/en-us/intel-media-server-studio) (<https://software.intel.com/en-us/intel-media-server-studio>)

Driver/Runtime Packages Available

GPU/CPU Driver Packages

- [OpenCL™ 2.0 GPU Driver Package for Linux*\(64-bit\)](#)
- (Also automatically shipped with Windows graphics drivers)

CPU-only Runtime Packages

- [OpenCL™ Runtime for Intel® Core™ and Intel® Xeon® Processors](#)

Intel® SDK for OpenCL™ Applications 2016 R3 for Linux (64-bit)

This is a standalone release for customers who do not need integration with the Intel® Media Server Studio. It provides components to develop OpenCL applications for Intel processors.

Visit <https://software.intel.com/en-us/intel-opencl> (<https://software.intel.com/en-us/intel-opencl>) to download the version for your platform. For details check out the [Release Notes](https://software.intel.com/en-us/articles/opencl-code-builder-release-notes) (<https://software.intel.com/en-us/articles/opencl-code-builder-release-notes>).

Intel® SDK for OpenCL™ Applications 2016 R3 for Windows* (64-bit)

This is a standalone release for customers who do not need integration with the Intel® Media Server Studio. The standard Windows graphics driver packages contains the driver and runtime library components necessary to run OpenCL applications. This package provides components for OpenCL development.

Visit <https://software.intel.com/en-us/intel-opencl> (<https://software.intel.com/en-us/intel-opencl>) to download the version for your platform. For details check out the [Release Notes](https://software.intel.com/en-us/articles/opencl-code-builder-release-notes) (<https://software.intel.com/en-us/articles/opencl-code-builder-release-notes>).

OpenCL™ 2.0 GPU/CPU driver package for Linux* (64-bit)

The [intel-opengl-r5.0 \(SRB5.0\) Linux driver package \(http://registrationcenter-download.intel.com/akdlm/irc_nas/11396/SRB5.0_linux64.zip\)](http://registrationcenter-download.intel.com/akdlm/irc_nas/11396/SRB5.0_linux64.zip) enables OpenCL 1.2 or 2.0 on the GPU/CPU for the following Intel® processors:

- Intel® 5th, 6th or 7th generation Core™ processor
- Intel® Celeron® Processor J3000 Series with Intel® HD Graphics 500 (J3455, J3355), Intel® Pentium® Processor J4000 Series with Intel® HD Graphics 505 (J4205), Intel® Celeron® Processor N3000 Series with Intel® HD Graphics 500 (N3350, N3450), Intel® Pentium Processor N4000 Series with Intel® HD Graphics 505 (N4200)
- Intel® Xeon® v4, or Intel® Xeon® v5 Processors with Intel® Graphics Technology (if enabled by OEM in BIOS and motherboard)

[Installation Instructions \(http://registrationcenter-download.intel.com/akdlm/irc_nas/11396/SRB5.0_intel-opengl-installation.pdf\)](http://registrationcenter-download.intel.com/akdlm/irc_nas/11396/SRB5.0_intel-opengl-installation.pdf). Scripts to automate install and additional install documentation available [here \(https://software.intel.com/en-us/articles/sdk-for-opengl-gsg\)](https://software.intel.com/en-us/articles/sdk-for-opengl-gsg).

Intel validates the intel-opengl-r5.0 driver on CentOS 7.2 and 7.3 when running the following 64-bit kernels:

- Linux 4.7 kernel patched for OpenCL
- Linux 4.4 kernel patched for Intel® Media Server Studio 2017 R3

Although Intel validates and provides technical support only for the above Linux kernels on CentOS 7.2 and 7.3, other distributions may be adapted by utilizing our generic operating system installation steps as well as MSS 2017 R3 installation steps.

In addition: Intel also validates Ubuntu 16.04.2 when running the following 64-bit kernel:

- Ubuntu 16.04.2 default 4.8 kernel

Ubuntu 16.04 with the default kernel works fairly well but some core features (i.e. device enqueue, SVM memory coherency, VTune support) won't work without kernel patches. This configuration has been minimally validated to prove that it is viable to suggest **for experimental use**, but it is not fully supported or certified.

Supported OpenCL devices:

- Intel® graphics (GPU)
- CPU

For detailed information please see the driver package [Release Notes \(http://registrationcenter-download.intel.com/akdlm/irc_nas/11396/SRB5.0_intel-openc1-release-notes.pdf\)](http://registrationcenter-download.intel.com/akdlm/irc_nas/11396/SRB5.0_intel-openc1-release-notes.pdf).
</file/531199/download>

Previous Linux driver packages:

[Intel intel-openc1-r4.1 \(SRB4.1\) Linux driver package \(http://registrationcenter-download.intel.com/akdlm/irc_nas/11396/SRB4.1_linux64.zip\)](http://registrationcenter-download.intel.com/akdlm/irc_nas/11396/SRB4.1_linux64.zip)

[Installation instructions \(http://registrationcenter-download.intel.com/akdlm/irc_nas/11396/intel-openc1-4.1-installation.pdf\)](http://registrationcenter-download.intel.com/akdlm/irc_nas/11396/intel-openc1-4.1-installation.pdf)

[Release Notes \(http://registrationcenter-download.intel.com/akdlm/irc_nas/11396/openc1-4.1-release-notes.pdf\)](http://registrationcenter-download.intel.com/akdlm/irc_nas/11396/openc1-4.1-release-notes.pdf)

[Intel intel-openc1-r4.0 \(SRB4\) Linux driver package \(/file/533571/download\)](/file/533571/download)

[Installation instructions \(/file/548832/download\)](/file/548832/download)

[Release Notes \(/file/533570/download\)](/file/533570/download)

[SRB3.1 Linux driver package \(/file/531197/download\)](/file/531197/download)

[Installation instructions \(/file/531198/download\)](/file/531198/download)

[Release Notes \(/file/531199/download\)](/file/531199/download)

For Linux drivers covering earlier platforms such as 4th generation Intel Core processor please see the versions of Media Server Studio in the [Driver Support Matrix \(https://software.intel.com/en-us/articles/driver-support-matrix-for-media-sdk-and-openc1\)](https://software.intel.com/en-us/articles/driver-support-matrix-for-media-sdk-and-openc1).

OpenCL™ Driver for Iris™ graphics and Intel® HD Graphics for Windows* OS (64-bit and 32-bit)

The standard Intel graphics drivers for Windows* include components needed to run OpenCL* and Intel® Media SDK applications on processors with Intel® Iris™ Graphics or Intel® HD Graphics on Windows* OS.

You can use the [Intel Driver Update Utility \(http://www.intel.com/content/www/us/en/support/detect.html\)](http://www.intel.com/content/www/us/en/support/detect.html) to automatically detect and update your drivers and software. Using the latest available graphics driver for your processor is usually recommended.

Supported OpenCL devices:

- Intel graphics (GPU)
- CPU

For the full list of Intel® Architecture processors with OpenCL support on Intel Graphics under Windows*, refer to the [Release Notes \(/en-us/articles/compute-code-builder-release-notes\)](#).

OpenCL™ Runtime for Intel® Core™ and Intel® Xeon® Processors

This runtime software package adds OpenCL CPU device support on systems with Intel Core and Intel Xeon processors.

Supported OpenCL devices:

- CPU

Latest release (16.1.1)

- [OpenCL™ Runtime 16.1.1 for Intel® Core™ and Intel® Xeon® Processors for Windows* \(64-bit & 32-bit\) \(http://registrationcenter-](http://registrationcenter.intel.com/Download/details.aspx?product=1067&lang=en)

download.intel.com/akd/irc_nas/9022/opencl_runtime_16.1.1_x64_setup.msi)

- [OpenCL™ Runtime 16.1.1 for Intel® Core™ and Intel® Xeon® Processors for Windows* \(32-bit\) \(http://registrationcenter-download.intel.com/akd/irc_nas/9022/opencl_runtime_16.1.1_x86_setup.msi\)](http://registrationcenter-download.intel.com/akd/irc_nas/9022/opencl_runtime_16.1.1_x86_setup.msi)
- [OpenCL™ Runtime 16.1.1 for Intel® Core™ and Intel® Xeon® Processors for Red Hat* Linux* \(64-bit\) \(http://registrationcenter-download.intel.com/akd/irc_nas/9019/opencl_runtime_16.1.1_x64_rh_6.4.0.25.tgz\)](http://registrationcenter-download.intel.com/akd/irc_nas/9019/opencl_runtime_16.1.1_x64_rh_6.4.0.25.tgz)
- [OpenCL™ Runtime 16.1.1 for Intel® Core™ and Intel® Xeon® Processors for SLES* Linux* \(64-bit\) \(http://registrationcenter-download.intel.com/akd/irc_nas/9019/opencl_runtime_16.1.1_x64_sles_6.4.0.25.tgz\)](http://registrationcenter-download.intel.com/akd/irc_nas/9019/opencl_runtime_16.1.1_x64_sles_6.4.0.25.tgz)
- [OpenCL™ Runtime 16.1.1 for Intel® Core™ and Intel® Xeon® Processors for Ubuntu* \(64-bit\) \(http://registrationcenter-download.intel.com/akd/irc_nas/9019/opencl_runtime_16.1.1_x64_ubuntu_6.4.0.25.tgz\)](http://registrationcenter-download.intel.com/akd/irc_nas/9019/opencl_runtime_16.1.1_x64_ubuntu_6.4.0.25.tgz)

Previous Runtimes (16.1)

- [OpenCL™ Runtime 16.1 for Intel® Core™ and Intel® Xeon® Processors for Windows* \(64-bit & 32-bit\) \(http://registrationcenter-download.intel.com/akd/irc_nas/9022/opencl_runtime_16.1_x64_setup.msi\)](http://registrationcenter-download.intel.com/akd/irc_nas/9022/opencl_runtime_16.1_x64_setup.msi)
- [OpenCL™ Runtime 16.1 for Intel® Core™ and Intel® Xeon® Processors for Windows* \(32-bit\) \(http://registrationcenter-download.intel.com/akd/irc_nas/9022/opencl_runtime_16.1_x86_setup.msi\)](http://registrationcenter-download.intel.com/akd/irc_nas/9022/opencl_runtime_16.1_x86_setup.msi)
- [OpenCL™ Runtime 16.1 for Intel® Core™ and Intel® Xeon® Processors for Red Hat* Linux* \(64-bit\) \(http://registrationcenter-download.intel.com/akd/irc_nas/9019/opencl_runtime_16.1_x64_rh_5.2.0.10002.tgz\)](http://registrationcenter-download.intel.com/akd/irc_nas/9019/opencl_runtime_16.1_x64_rh_5.2.0.10002.tgz)
- [OpenCL™ Runtime 16.1 for Intel® Core™ and Intel® Xeon® Processors for SLES* Linux* \(64-bit\) \(http://registrationcenter-download.intel.com/akd/irc_nas/9019/opencl_runtime_16.1_x64_sles_5.2.0.10002.tgz\)](http://registrationcenter-download.intel.com/akd/irc_nas/9019/opencl_runtime_16.1_x64_sles_5.2.0.10002.tgz)
- [OpenCL™ Runtime 16.1 for Intel® Core™ and Intel® Xeon® Processors for Ubuntu* \(64-bit\) \(http://registrationcenter-download.intel.com/akd/irc_nas/9019/opencl_runtime_16.1_x64_ubuntu_5.2.0.10002.tgz\)](http://registrationcenter-download.intel.com/akd/irc_nas/9019/opencl_runtime_16.1_x64_ubuntu_5.2.0.10002.tgz)

Previous Runtimes (15.1):

- [OpenCL™ Runtime 15.1 for Intel® Core™ and Intel® Xeon® Processors for Windows* \(64-bit & 32-bit\)](http://registrationcenter.intel.com/irc_nas/5198/openccl_runtime_15.1_x64_setup.msi) (http://registrationcenter.intel.com/irc_nas/5198/openccl_runtime_15.1_x64_setup.msi)
- [OpenCL™ Runtime 15.1 for Intel® Core™ and Intel® Xeon® Processors for Windows* \(32-bit\)](http://registrationcenter.intel.com/irc_nas/5198/openccl_runtime_15.1_x86_setup.msi) (http://registrationcenter.intel.com/irc_nas/5198/openccl_runtime_15.1_x86_setup.msi)
- [OpenCL™ Runtime 15.1 for Intel® Core™ and Intel® Xeon® Processors for Red Hat* and SLES* Linux* \(64-bit\)](http://registrationcenter.intel.com/irc_nas/5193/openccl_runtime_15.1_x64_5.0.0.57.tgz) (http://registrationcenter.intel.com/irc_nas/5193/openccl_runtime_15.1_x64_5.0.0.57.tgz)

For the full list of supported Intel® architecture processors, refer to the OpenCL™ Runtime [Release Notes \(/en-us/articles/openccl-runtime-release-notes/\)](#).

Deprecated Releases

Note: These releases are no longer maintained or supported by Intel

OpenCL™ Runtime 14.2 for Intel® CPU and Intel® Xeon Phi™ Coprocessors

This runtime software package adds OpenCL support to Intel Core and Xeon processors and Intel Xeon Phi coprocessors.

Supported OpenCL devices:

- Intel Xeon Phi coprocessor
- CPU

Available Runtimes

- [OpenCL™ Runtime Driver for Intel® CPU and Intel® Xeon Phi™ Coprocessors for Linux* \(64-bit\) \(http://registrationcenter.intel.com/irc_nas/4181/openccl_runtime_14.2_x64_4.5.0.8.tgz\)](http://registrationcenter.intel.com/irc_nas/4181/openccl_runtime_14.2_x64_4.5.0.8.tgz)
- [OpenCL™ Runtime Driver for Intel® CPU and Intel® Xeon Phi™ coprocessors for Windows* \(64-bit\) \(http://registrationcenter.intel.com/irc_nas/4180/openccl_runtime_14.2_x64_setup.msi\)](http://registrationcenter.intel.com/irc_nas/4180/openccl_runtime_14.2_x64_setup.msi)

For the full list of supported Intel architecture processors, refer to the OpenCL™ Runtime [Release Notes \(/en-us/articles/openccl-runtime-release-notes/\)](/en-us/articles/openccl-runtime-release-notes/).

For more complete information about compiler optimizations, see our [Optimization Notice \(/en-us/articles/optimization-notice#opt-en\)](/en-us/articles/optimization-notice#opt-en).

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