

# Intel® CPU Runtime for OpenCL™ Applications 2021.1 Release Release Notes

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## 1 Introduction

The Intel® CPU Runtime for OpenCL™ Applications 2021.1 release provides OpenCL™ support for Intel® CPU devices.

This document contains system requirements, installation instructions, information about known issues and limitations, and legal information.

### Customer support

To learn more about this product, see documentation, FAQ, code samples, and other support information at this site: <https://software.intel.com/en-us/intel-opencl-support>.

For technical support, including answers to questions not addressed in the installed product, go to the OpenCL™ forum at this site: <https://software.intel.com/en-us/forums/opencl>.

## 2 What's New

The 2021.1 Gold release includes:

- 1) Subgroup support.
- 2) Minor bug fixes

## 3 System Requirements

For an explanation of architecture names, see <http://software.intel.com/en-us/articles/intel-architecture-platform-terminology/>.

### 3.2.1 Processor Requirements

The Intel® CPU Runtime for OpenCL™ Applications 2021.1 provides CPU device support on the following processors:

- Intel Core™ processor family with Intel® Streaming SIMD Extensions 4.2 (Intel® SSE4.2) support or higher
- Intel Xeon® processor E3, E5, and E7 families with Intel® SSE4.2 support or higher
- Intel Xeon® Scalable processors Platinum, Gold, Silver, Bronze families with Intel® SSE4.2 support or higher

Intel® CPU Runtime for OpenCL™ Applications 2021.1 provides optimizations for processors that support the following instruction sets:

- Intel® Advanced Vector Extensions 512 (Intel® AVX-512) Foundation instructions (Intel® AVX-512F), Intel® AVX-512 Conflict Detection instructions (AVX-512CD), Intel® AVX-512 Doubleword and Quadword instructions (AVX-512DQ), Intel® AVX-512 Byte and Word instructions (AVX-512BW) and Intel® AVX-512 Vector Length Extensions (AVX-512VL)
- Intel® Advanced Vector Extensions 2 (Intel® AVX2)
- Intel® Advanced Vector Extensions (Intel® AVX)
- Intel® Streaming SIMD Extensions 4.2 (Intel® SSE4.2)

**NOTE:** Incompatible or proprietary instructions of non-Intel processors may cause the analysis capabilities of this product to function incorrectly. Any attempt to analyze code not supported by Intel processors may lead to failures in this product.

### 3.2.2 Software Requirements

For 2021.1 release, the supported Operating Systems are listed below:

| Windows  | Linux*   |
|--|--|
| <ul style="list-style-type: none"> <li>• Microsoft Windows* 10 (IA-32 or Intel® 64)</li> <li>• Microsoft Windows* Server 2019 (IA-32 or Intel® 64)</li> <li>• Microsoft Windows* Server 2016 (IA-32 or Intel® 64)</li> </ul> | <ul style="list-style-type: none"> <li>• Ubuntu* 20.04 LTS</li> <li>• Red Hat* Enterprise Linux* 8.1</li> <li>• CentOS* 8.x</li> <li>• SUSE* 15.x</li> </ul> |

**Note:** Higher versions are expected to be functional.

## 4 Installation Notes

**Note:** If an older version of Intel® CPU Runtime for OpenCL Application is installed, please uninstall it before installing the new version.

### 4.1 Installation or Uninstallation on Microsoft Windows\*

**1) To install** the Intel® CPU Runtime for OpenCL™ Applications on Windows\* systems, download and run the Runtime package; follow the installer prompts to install.

**2) To uninstall** the Intel® CPU Runtime for OpenCL™ Applications, go to **Control Panel > Programs and Features > OpenCL™ Runtime > Uninstall**.

### 4.2 Installation on Linux\*

**1) To install:** please follow the instructions at [Intel® oneAPI Toolkits Installation Guide for Linux](#) to install the Intel® CPU Runtime for OpenCL™ Applications on Linux\* systems. The runtime package name is "intel-oneapi-runtime-openc1".

**2) To uninstall:**

- For Ubuntu OS, follow the standard Debian package uninstallation process to remove using the command below:

```
$ apt-get -purge remove intel-oneapi-runtime-openc1
```

- For CentOS or RHEL or SUSE, use the following command to uninstall:

```
$ yum remove intel-oneapi-runtime-openc1
```

## 5 Known Issues or Limitations

- 1) Intel® CPU Runtime for OpenCL™ Applications has a dependency on Intel® Threading Building Blocks (Intel® TBB) that is included in the Intel® CPU Runtime installation.

The Intel® TBB libraries included in the package have different names which are different than previous Intel TBB or the open-source Threading Building Blocks because of breaking changes. This change ensures that no load conflict takes place with pre-installed libraries.

If the OpenCL™ host code uses features of previous version of Intel® TBB libraries the application performance may vary (e.g. due to oversubscription issues in case of both standalone library pool and OpenCL thread pool being fully loaded).

- 2) After OpenCL™ Contexts are created for both “Experimental OpenCL 2.1 CPU Only Platform” and “Intel(R) CPU Runtime for OpenCL(TM) Applications” OpenCL™ Kernel compilation for any of the two may destabilize the application. Use “Intel(R) CPU Runtime for OpenCL(TM) Applications” platform for features of “Experimental OpenCL 2.1 CPU Only Platform” instead.
- 3) Compilation of kernels with empty loop bodies may not terminate. Disable vectorization (using environment variables “CL\_CONFIG\_USE\_VECTORIZER=False” or “CL\_CONFIG\_CPU\_VECTORIZER\_MODE=1”) or disable all compiler optimizations (using compiler option “-cl-opt-disable”) can work around the issue.
- 4) Configuration file parameter CL\_CONFIG\_CPU\_TARGET\_ARCH cannot be set from cl.cfg, only as environment variable.

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