

Intel® CPU Runtime for OpenCL™ Applications 2025.1.0 Release

Release Notes

Mar. 2025

Contents

1	Introduction.....	1
	Customer support	1
2	What's New.....	2
3	System Requirements.....	2
	3.1 Processor Requirements.....	2
	3.2 Software Requirements	2
4	Installation or Uninstallation	3
	4.1 Microsoft Windows*.....	3
	4.2 Linux	3
5	Known Issues or Limitations	3
6	Disclaimer and Legal Information	4

1 Introduction

The Intel® CPU Runtime for OpenCL™ Applications 2025.1.0 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

For technical support, including answers to questions not addressed in the installed product, go to the OpenCL™ forum at this site: <https://community.intel.com/t5/OpenCL-for-CPU/bd-p/opencl>.

2 What's New

- [cl_ext_float_atomics_extension](#) is officially declared to support for all atomic operations on floating-point numbers in memory.
- [cl_khr_integer_dot_product](#) extension is supported to add support for SPIR-V instructions and OpenCL C built-in functions to compute the dot product of vectors of integers.
- [cl_khr_device_uuid](#) extension is supported to query a universally unique identifier (UUID) for OCL CPU device.
- Fixed some minor stabilization issues.

3 System Requirements

3.1 Processor Requirements

The Intel® CPU Runtime for OpenCL™ Applications 2025.1.0 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 2025.1.0 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)
- Intel® Advanced Vector Extensions (Intel® AVX-VNNI)

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 Software Requirements

For 2025.1.0 release, the supported Operating Systems are listed below:

- Microsoft Windows* 10 (IA-32 or Intel® 64)
- Microsoft Windows* 11 (IA-32 or Intel® 64)

- Microsoft Windows* Server 2019 (IA-32 or Intel® 64)
- Microsoft Windows* Server 2022 (IA-32 or Intel® 64)
- Microsoft Windows* Server 2025 (IA-32 or Intel® 64)
- Red Hat* Enterprise Linux* 8.x, 9.x
- SUSE Linux Enterprise Server (SLES)* 15 SP4, SP5, SP6
- Ubuntu* 22.04 LTS, 24.04
- Fedora* 40, 41
- Rocky* 9.x

4 Installation or Uninstallation

4.1 Microsoft Windows*

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

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 Linux

Please follow the instructions on Install Using Package Managers to setup the repository and install the package "**intel-oneapi-runtime-ocl**".

5 Known Issues or Limitations

- 1) Intel® CPU Runtime for OpenCL™ Applications requires opencl v3.0. If there is an older opencl.dll in the system folder, or other location due to the library PATH order, potentially we will encounter failures, including some opencl runtime issues and some VTune/Advisor crashes (when specific new features in OpenCL 3.0 are used).

The solution is to copy the opencl.dll that we installed to C:\Program Files (x86)\Common Files\intel\Shared Libraries\bin to the system folder to overwrite older opencl.dll. (Please backup older opencl.dll if needed.)

- 2) 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).

- 3) Configuration file parameter CL_CONFIG_CPU_TARGET_ARCH cannot be set from cl.cfg. It can only be set as an environment variable.

6 Disclaimer and Legal Information

No license (express or implied, by estoppel or otherwise) to any intellectual property rights is granted by this document.

Intel Corporation disclaims all express and implied warranties, including without limitation, the implied warranties of merchantability, fitness for a particular purpose, and non-infringement, as well as any warranty arising from course of performance, course of dealing, or usage in trade.

This document contains information on products, services and/or processes in development. All information provided here is subject to change without notice. Contact your Intel representative to obtain the latest forecast, schedule, specifications and roadmaps.

The products and services described may contain defects or errors known as errata which may cause deviations from published specifications. Current characterized errata are available on request.

Copies of documents which have an order number and are referenced in this document may be obtained by calling 1-800-548-4725 or by visiting www.intel.com/design/literature.htm.

Intel, the Intel logo, Intel Atom, Intel Atom Inside, Intel Core, Intel vPro, Intel Xeon Phi, Itanium, Pentium, Ultrabook, VTune, Xeon, are trademarks of Intel Corporation in the U.S. and/or other countries.

* Other names and brands may be claimed as the property of others.

Microsoft, Windows, and the Windows logo are trademarks, or registered trademarks of Microsoft Corporation in the United States and/or other countries.

Product is conformant with OpenCL 3.0.

Copyright © 2020-2025, Intel Corporation. All rights reserved.