Intel® CPU Runtime for OpenCL™ Applications 2025.1.0 Release Release Notes

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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-opencl**".

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 olde 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

Product is conformant with OpenCL 3.0.