Intel® CPU Runtime for OpenCL™ Applications 2024.1 Release Release Notes

March 2024

Contents

1 Introduction

The Intel® CPU Runtime for OpenCL™ Applications 2024.1 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

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

- Fully support FP16 data type. It's not an experimental feature now.
- Optimize the performance for test case with big local / private memory requirements.
- Bug fixing for stabilization.

3 System Requirements

3.1 Processor Requirements

The Intel® CPU Runtime for OpenCL™ Applications 2024.1 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 2024.1 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)
- 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 2024.1 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 2022 (IA-32 or Intel® 64)
- Microsoft Windows* Server 2019 (IA-32 or Intel® 64)
- Red Hat* Enterprise Linux* 8.x, 9.x
- SUSE Linux Enterprise Server (SLES)* 15 SP3, SP4, SP5

- Ubuntu* 20.04 LTS, 22.04
- Fedora* 38, 39

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 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) 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.