Intel® CPU Runtime for OpenCL™ Applications 2022.2 Release
Release Notes

Aug. 2022

Contents

1 Introduction

The Intel® CPU Runtime for OpenCL™ Applications 2022.2 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.

1

2   What's New

The 2022.2 release includes:

- Add device attribute query extension "cl_intel_device_attribute_query". This extension can be used to query additional information about Intel OpenCL devices. The additional information may be useful to tailor a specific workload to the properties of the device. User can query the following information for CPU device:

  - **CL_DEVICE_NUM_SLICES_INTEL:** Number of NUMA nodes of the device.
    - For root device, it's the total number of NUMA nodes on the machine.
    - If sub-devices are partitioned with CL_DEV_PARTITION_AFFINITY_NUMA, it should be 1.
  - **CL_DEVICE_NUM_SUB_SLICES_PER_SLICE_INTEL:** return 1
  - **CL_DEVICE_NUM_EUS_PER_SUB_SLICE_INTEL:** Number of physical cores on each NUMA node.
  - **CL_DEVICE_NUM_THREADS_PER_EU_INTEL:** Number of threads per core.

- Prompt the user-friendly error message when TBB libraries are not loaded correctly.

- OpenCL ICD loader is uplifted and "OCL_ICD_ENABLE_TRACE" environment variable is enabled. When set OCL_ICD_ENABLE_TRACE=1 or true, detailed information of OpenCL ICD loader execution will be provided.

3   System Requirements

3.2.1   Processor Requirements

The Intel® CPU Runtime for OpenCL™ Applications 2022.2 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 2022.2 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 2022.2 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)
- Microsoft Windows* Server 2016 (IA-32 or Intel® 64)

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-opencl".

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-opencl

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

  $ yum remove 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.

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