Intel® CPU Runtime for OpenCL™ Applications 2021.2 Release Release Notes

March, 2021

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1   Introduction

The Intel® CPU Runtime for OpenCL™ Applications 2021.2 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

To learn more about this product, see documentation, FAQ, code samples, and other support information at this site: https://software.intel.com/content/www/us/en/develop/articles/intel-cpu-runtime-for-opencl-applications-with-sycl-support.html.

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 2021.2 release includes minor bug fixes:

1.   Fixed bug in SVM/USM memory management.
2.   Removed the dependency on libxml2.
3.   Fixed compatibility issue with oneTBB 2021.2.

3   System Requirements

3.1   Processor Requirements

The Intel® CPU Runtime for OpenCL™ Applications 2021.2 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 2021.2 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   Software Requirements

For 2021.2 release, the supported Operating Systems are listed below:

Windows	Linux*
• Microsoft Windows* 10 (IA-32 or Intel® 64) • Microsoft Windows* Server 2019 (IA-32 or Intel® 64) • Microsoft Windows* Server 2016 (IA-32 or Intel® 64)	• Ubuntu* 20.04 LTS • Red Hat* Enterprise Linux* 8.1 • CentOS* 8.x • SUSE* 15.x

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-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) After OpenCL™ Contexts are created for both "`Experimental OpenCL 2.2 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 2.2 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`") to work around the issue.

4) 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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