SUPRA on oneAPI  
Release Notes

Release Notes

22 September 2020

## Version History/Revision History

These are the main releases of SUPRA on oneAPI:

|  |  |  |
| --- | --- | --- |
| Date | Revision | Description |
| Sept, 2020 | 1.0 | Initialize version |
|  |  |  |
|  |  |  |

## Intended Audience

Software developers from OEM / ODM / SI / ISV

## Customer Support

For technical support, including answers to questions not addressed in this product, report issues on github, <https://github.com/intel/supra-on-oneapi/issues>

## 

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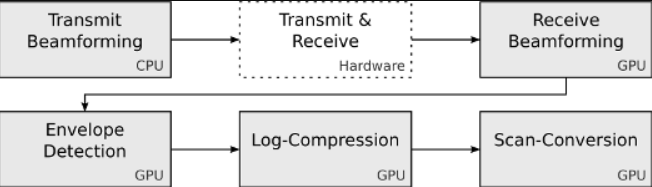
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# Introduction

We use oneAPI toolkit -- Intel® DPC++ Compatibility Tool, to implement the migration from CUDA to standard DPC++, for more detail of the tool, please refer to : <https://software.intel.com/content/www/us/en/develop/tools/oneapi/components/dpc-compatibility-tool.html>

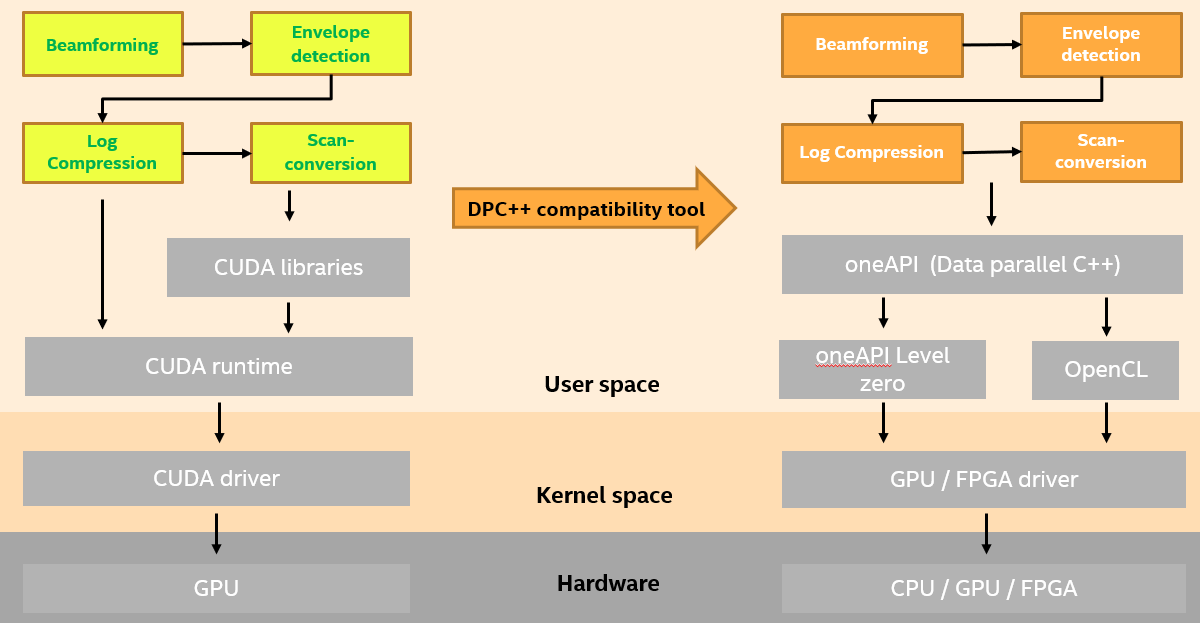
The CUDA-based sample application is SUPRA. It is an open source software defined ultrasound processing for real-time applications. Covering everything from beamforming to output of B-Mode images, SUPRA can help reproducibility of results and allows modifications to the image acquisition.

It includes all processing stages of a usual ultrasound pipeline, it can be executed in 2D and 3D on consumer GPUs in real- time. Pipeline shown as below:



More detail of SUPRA project, please refer to <https://github.com/IFL-CAMP/supra>.

The key algorithm is written in CUDA code. Now, we use Compatibility Tool to migrate the SUPRA CUDA-based code to DPC++-based code, shown as below:



To learn more about this product, see:

* New features listed in the [New in this Release](#_What's_New) section below
* Reference documentation listed in the [Related Documentation](#_Related_Documentation) section below

# New in This Release

## New Features

* Provide sample patch on how to migrate from CUDA to DPC++ by compatibility tool
* Provide sample patch of manually change after oneAPI compatibility tool automatic migration
* Provide optimize based on DPC++
* Provide getting start guide

# Fixed Issues

NULL

# Known Issues

We make use of oneAPI toolkit to implement all the functionality. Please refer to <https://software.intel.com/content/www/us/en/develop/articles/intel-oneapi-base-toolkit-system-requirements.html>, for oneAPI system requirement.

And, you can also get more information from <https://software.intel.com/oneapi>.

**[Note]** The oneAPI toolkit used in ‘SUPRA on oneAPI’ is still in Beta stage, it is at Beta07. All the code handled by oneAPI is not qualified for “production” purpose.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Reference ID | Description | symptom | Impact | Workaround/Resolution | Affected component/module/driver | Affected OS |
| 1 | Do not support running on Atom GPU. | GUI crashes during startup. | GUI crashes during startup. The demo is not able to run on the platform with Atom GPU, if you choose opencl path. | No. | Atom SOC, such as ApolloLake SOC. | Atom SOC. For example, ApolloLake E3950 |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

## Non-Intel Issues

NULL

# Related Documentation

SUPRA on oneAPI Getting Start Guide.pdf

# Where to Find the Release

Please use git to download source code from git project, <https://github.com/intel/supra-on-oneapi>

## How to Install this Release

* Please refer to **SUPRA on oneAPI Getting Start Guide.pdf**.

# Release Content

Table 1-1 Revision numbers of components of the Production Candidate release.

|  |  |  |
| --- | --- | --- |
| Subproject (component) | Location | Revision |
| Patches | <https://github.com/intel/supra-on-oneapi> | 2020.09.r1 |
| Getting start guide | <https://github.com/intel/supra-on-oneapi> | 2020.09.r1 |

## External Dependencies

* oneAPI beta07, <http://registrationcenter-download.intel.com/akdlm/irc_nas/16702/l_BaseKit_b_2021.1.7.1506_offline.tar.gzd>

# Best Known Configuration

Please refer to **SUPRA on oneAPI Getting Start Guide.pdf**

# Hardware and Software Compatibility

* For system requirement, please refer to <https://software.intel.com/content/www/us/en/develop/articles/intel-oneapi-base-toolkit-system-requirements.html>
* We have verified on below systems:

1. An Intel NUC with below configuration:

CPU: Intel(R) Core(TM) i7-6700 CPU @ 3.40GHZ x4

GPU: Intel Corporation Sky Lake Integrated Graphics (rev 06)

OS: Ubuntu 18.04.4 LTS, Linux version 5.4.0-42-generic

1. An X86 desktop with below configuration:

CPU: Intel(R) Core(TM) i7-7567U CPU @ 3.5GHz x4

GPU: Intel(R) Iris Plus Graphics 650 (Kaby lake GT3e)

OS: Ubuntu 10.04.1 (kernel 5.4.0-42-generic)

1. An X86 desktop with below configuration:

CPU: Intel Core i7-8700K CPU @3.7GHz x12

GPU: Intel UHD Graphics 630

OS: Ubuntu 18.04.2 (kernel 5.4.0-45-generic)

## Supported Operating Systems

Ubuntu 18.04

# Acronyms and Terms

The following acronyms and terms are used in this document (arranged in alphabetic order):

|  |  |
| --- | --- |
| Acronym/Term | Description |
| Intel® oneAPI™ | oneAPI is a cross-industry, open, standards-based unified programming model that delivers a common developer experience across accelerator architectures—for faster application performance, more productivity, and greater innovation. Please refer to <https://www.oneapi.com/>.  Intel® oneAPI products will deliver the tools needed to deploy applications and solutions across the architectures. Please refer to <https://software.intel.com/content/www/us/en/develop/tools/oneapi.html> |
| SUPRA | An open-source pipeline for fully software defined ultrasound processing for real-time applications. Covering everything from beamforming to output of B-Mode images, SUPRA can help reproducibility of results and allows modifications to the image acquisition. |
| DPC++ | At the core of the oneAPI specification is DPC++, an open, cross-architecture language built upon the ISO C++ and Khronos SYCL standards. |
| Intel® DPC++ Compatibility Tool | The Intel® DPC++ Compatibility Tool assists in migrating your existing CUDA code to Data Parallel C++ (DPC++) code. Refer to <https://software.intel.com/content/www/us/en/develop/tools/oneapi/components/dpc-compatibility-tool.html> |

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| SUPRA on oneAPI | LGPL 2.1 |