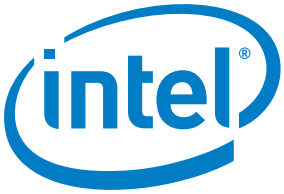


SUPRA on oneAPI Release Notes

Release Notes

24 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

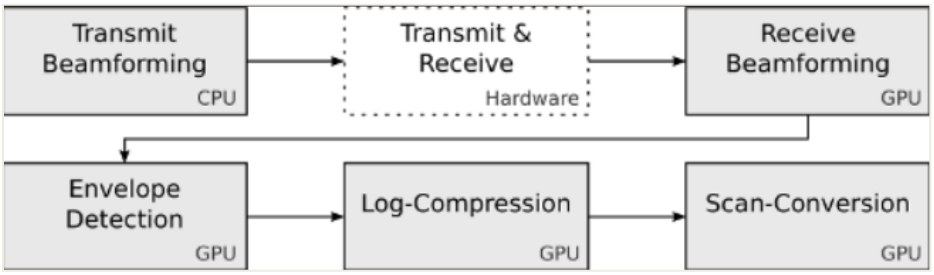
Contents:

1 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

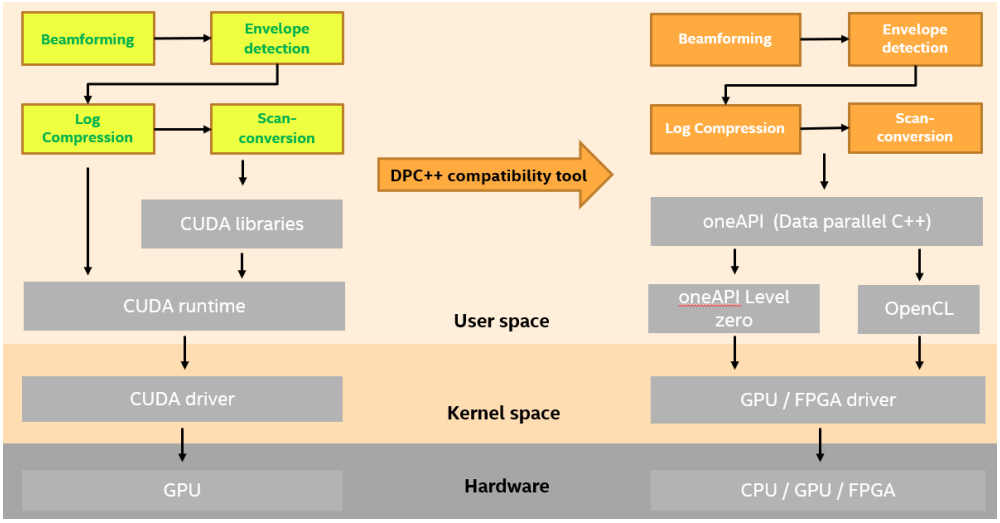
The CUDA-based sample application is SUPRA. It is an open source software defined ultrasound processing for real-time applications. Covering everything from beamforming to output of B-Mode images, SUPRA can help reproducibility of results and allows modifications to the image acquisition.

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 section below
- Reference documentation listed in the Related Documentation section below

2 New in This Release

New Features

- Provide sample patches on how to migrate from CUDA to DPC++ by compatibility tool
- Provide sample patches of manually change after oneAPI compatibility tool automatic migration
- Provide sample patches of optimization based on DPC++

3 Fixed Issues

NULL

4 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

5 Related Documentation

SUPRA on oneAPI Getting Start Guide v0.8.pdf

6 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**.

7 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

8 Best Known Configuration

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

9 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

  2) 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)

  3) 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

10 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

11 Legal Information

Component	License
SUPRA on oneAPI	LGPL v2.1