GROMACS - Task #3316

Feature # 3311 (In Progress): GPU infrastructure development

Feature # 3313 (Accepted): Introduce and use opaque types for the DeviceStream and DeviceContext

Context and Stream manager

01/22/2020 08:58 AM - Artem Zhmurov

Status:	Accepted	
Priority:	Normal	
Assignee:	Artem Zhmurov	
Category:		
Target version:	2021-refactoring	
Difficulty:	uncategorized	

Description
Context and stream manager that will be able to take over the responsibility and ownership of all streams and context. Currently, streams are created and managed in the respective modules, which requires passing them over from one module to another (e.g. when H2D and D2H copies are issued). All the management should be taken over by a new object, simplifying the logic inside the respective modules.

Associated revisions

Revision 99f4253d - 03/23/2020 04:46 AM - Artem Zhmurov

Introduce DeviceStreamManager

Make a separate object that will be handling the creation,
management and destruction of the GPU context and streams.
It is detached from the rest of the code in this patch,
but will be attached in the follow-up.

Refs #3316
Refs #3311

Change-Id: I2c59b930ac266d89fafe9e0172b83f07e9858f0b

Revision db2c0d2e - 03/25/2020 07:47 AM - Artem Zhmurov

Make use of the DeviceStreamManager

Use the DeviceStreamManager throughout the code. The manager is
owned by the runner and created when GPU is active. The consumers
get the context and streams if needed.

TODOs:
1. Make builders and move the selection on whether the stream should
be created there. The builders should take the manager and pass
the context and the stream to the consumer. Builders should have
the option to create a stream.
2. Makefile in ewald tests uses old infrastructure. Also, the device
context management should be lifted from there and utilized in
all the tests that can run on GPU hardware.

Refs #3316
Refs #3311

Change-Id: I0d08adbe1dee19c1890e55f0e0cf79cea97d39bd

History

#1 - 01/22/2020 09:39 AM - Artem Zhmurov

- Tracker changed from Feature to Task

- Assignee set to Artem Zhmurov

- Target version set to 2021

#2 - 01/22/2020 09:40 AM - Artem Zhmurov

- Status changed from New to Accepted

#3 - 01/22/2020 09:49 AM - Artem Zhmurov

- Target version changed from 2021 to 2021-refactoring