### Task #3077

**PME/PP GPU Comms unique pointer deletion causes seg fault when CUDA calls exist in destructor**

09/05/2019 03:48 PM - Alan Gray

<table>
<thead>
<tr>
<th>Status:</th>
<th>Feedback wanted</th>
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<tbody>
<tr>
<td>Priority:</td>
<td>Normal</td>
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<tr>
<td>Assignee:</td>
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<tr>
<td>Category:</td>
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<td>Target version:</td>
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<td>Difficulty:</td>
<td>uncategorized</td>
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<td>Description</td>
<td>When the unique pointer used for the PME-PP GPU communications objects are automatically deleted, the code sometimes seg-faults. I originally thought this was only the case when CUDA calls exist in the destructor, but have now also seen it happen even with default destructors. I have reverted to regular pointers for now. This should be investigated further, with unique pointers reinstated.</td>
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**Related issues:**

Related to GROMACS - Feature #3115: Device stream manager

**Associated revisions**

Revision c2e5f578 - 10/29/2019 10:55 AM - Alan Gray

Add code to destroy object when it is no longer required. Even although object is managed by a unique pointer, this needs to be done while the GPU context still exists, otherwise a seg fault can occur when it is automatically destroyed later.

Addresses #3077

Change-Id: I9d6f798d79a73e2ce366c9fb85a0f9339fc9f88

**History**

#1 - 09/11/2019 06:10 PM - Alan Gray
- Description updated

#2 - 09/19/2019 12:15 PM - Szilárd Páll

Is this still an issue?

#3 - 09/19/2019 01:03 PM - Alan Gray

Yes, it's still an issue - I've not had time to properly investigate/fix it yet.

#4 - 09/20/2019 01:04 PM - Mark Abraham

I've not seen any issues with such patches

#5 - 10/29/2019 03:57 PM - Alan Gray
- Status changed from New to Closed

#6 - 11/01/2019 06:56 PM - Szilárd Páll
- Status changed from Closed to Feedback wanted

We not have the same issue with gpuHaloExchange, I assume, only because we are not doing cudaStreamCreate?

Also, while looking into this I realized that:
- c2e5f578 added the freeing quite early; I suggest moving it closer to the place where related freeing happens. in runner.cpp, around where gmx_pme_destroy() is called.

04/02/2020
- we do not have a cudaStreamDestroy for pmepCommStream_; I suggest adding the missing call to the destructor.

As noted on #3021, we need docs on this lifetime management concerns. Side-note: we could side-step such issues if we had the code for #3115 as that would make the lifetime dependencies more clear.

#7 - 11/01/2019 06:56 PM - Szilárd Pál
- Related to Feature #3115: Device stream manager added