

## GROMACS - Task #2539

### Support hwloc 2.x.x

05/31/2018 09:12 PM - Kevin Boyd

<b>Status:</b>	Closed
<b>Priority:</b>	Normal
<b>Assignee:</b>	Kevin Boyd
<b>Category:</b>	
<b>Target version:</b>	2019
<b>Difficulty:</b>	uncategorized
<b>Description</b>	
hwloc versions 2.0.0 and up (current stable release is 2.0.1) have some API changes that need to be addressed, for example hwloc objects no longer have a memory attribute.	

#### Associated revisions

##### Revision 6f58aa98 - 08/04/2018 10:15 PM - Kevin Boyd

Support hwloc 2.x.x

Created compatibility layer to account for API changes moving from hwloc 1.x.x to 2.x.x while retaining support for v1.x.x.

Changes supporting hwloc 2.x.x include:

- reworked descendents lookup in topology tree to account for new division of object children into "normal", "memory", and "io" types
- different memory access location for hwloc objects
- accessing distances (latencies) between nodes has been reworked
- different flags for accessing PCI devices
- changed numa node ancestor search to account for numa nodes no longer being a normal part of topology tree

Fixes #2539

Change-Id: I483dda3dd344d8f7c99aa828bcc118a3d2de9dfd

##### Revision 43512398 - 07/05/2019 09:15 AM - Mark Abraham

Modernize FindHwloc.cmake

Users (and Jenkins) need the ability to direct finding a particular hwloc version, e.g. from a module. This is particularly important now that two API versions exist and are supported in GROMACS. Imported the find module from Inria, which adds several useful capabilities, including the ability to specify where to look for a specific version of this library.

Removed the pkgconfig support from the imported FindHwloc.cmake because it seems the hwloc.pc file from libhwloc does not lead to the CMake idiomatic behaviour of HWLOC\_LIBRARIES being the full path to the library.

Refs #2539, #3011

Change-Id: I6837144a556f1c61a0f13406fb31fe1d527b65f4

#### History

##### #1 - 05/31/2018 09:41 PM - Mark Abraham

Yeah we should do that. We probably need to write some kind of compatibility layer because we should probably continue to support hwloc 1.x until at least GROMACS 2020.

If we bundle hwloc some time (as IMO the only practical way to support linking a fully static binary), we should definitely do so from hwloc 2.x, however.

##### #2 - 06/13/2018 02:28 PM - Mark Abraham

When he visited recently, Kevin was interested to work on providing a wrapper layer so that the current use of hwloc in gromacs doesn't need to know which version is linked. We need to be able to support both flavours of hwloc moving forward. That's currently a small surface area, so maybe we can backport to release-2018 when we see the full scope.

### #3 - 06/13/2018 03:50 PM - Prashanth Kanduri

As mark mentioned to me, the master branch must support hwloc 1.x for at least an year before only focussing on hwloc 2.x+ only. Since the 2018 version already supports hwloc 1.x, we can consider if this is necessary on the master branch as well if 2019 plans to phase it out.

One can make two preprocessor pathways based on the hwloc version. One using the old API, and another the new one. It amounts to duplication of a few lines in hardwaretopology.cpp.

Has anyone already started work on it?

### #4 - 06/13/2018 04:48 PM - Kevin Boyd

I'm working on it, yes.

### #5 - 06/14/2018 11:39 AM - Mark Abraham

GROMACS 2019 will support hwloc 1.x, and (once we get this working) also hwloc 2.x. So master branch will support both flavours once we're done. We might consider removing the support for 1.x in GROMACS 2020, but that's not a decision we need to take now.

### #6 - 07/28/2018 03:31 PM - Gerrit Code Review Bot

Gerrit received a related patchset '3' for Issue [#2539](#).

Uploader: Kevin Boyd ([kevin.boyd@uconn.edu](mailto:kevin.boyd@uconn.edu))

Change-Id: gromacs~master~l483dda3dd344d8f7c99aa828bcc118a3d2de9dfd

Gerrit URL: <https://gerrit.gromacs.org/8114>

### #7 - 08/03/2018 02:07 PM - Kevin Boyd

Mark Abraham wrote:

When he visited recently, Kevin was interested to work on providing a wrapper layer so that the current use of hwloc in gromacs doesn't need to know which version is linked. We need to be able to support both flavours of hwloc moving forward. That's currently a small surface area, so maybe we can backport to release-2018 when we see the full scope.

The patch on gerrit is more or less finalized. Now that we've got the scope of the patch, do you think we should backport it to release-2018? If not, we should add an error in cmake if v2 is selected.

### #8 - 08/03/2018 02:48 PM - Erik Lindahl

I would leave the release branch alone, because every single change we make there comes with the risk of introducing another bug.

First, it will likely be quite some time before hwloc-2.0 is the default on an Linux system, and even if it is, that would just lead to the compilation failing - it can never lead to silent errors.

### #9 - 08/03/2018 03:11 PM - Paul Bauer

I agree with Erik here, there is next to no chance of a user running into the newer version of hwloc in the time that 2018 is supported. I checked Debian as an example and there it is not even in the unstable (broken) repository.

### #10 - 08/04/2018 12:05 PM - Mark Abraham

OK, we can fix release-2018 to only accept versions < 2.

### #11 - 08/04/2018 10:30 PM - Kevin Boyd

- Status changed from New to Resolved

Applied in changeset [6f58aa984a84c651419f5de9b46b81ade136619c](#).

### #12 - 09/19/2018 03:03 PM - Mark Abraham

- Status changed from Resolved to Closed