cycle counter assertion failure
09/14/2015 10:29 AM - Berk Hess

Status: Closed
Priority: Normal
Assignee: Berk Hess
Category: mdrun
Target version: 5.1
Affected version: 5.1
Difficulty: uncategorized

Description
In Jenkins I had a test failing an assertion for the cycle counts:
```
gmx: /home/jenkins/workspace/Gromacs_Gerrit_5_1/af150aab/gromacs/src/gromacs/timing/wallcycle.c:396: subtract_cycles:
Assertion `wcc[ewc_main].c >= wcc[ewc_sub].c' failed.
```

We should of course fix the source of this. But do we really want to have a simulation terminate because of cycle miscounting? This is completely harmless from nearly any point of view.

Associated revisions
Revision 4dd6716e - 09/15/2015 03:56 PM - Berk Hess
Detect incorrect cycle counting

When threads are not pinned to cores, the wallcycle counting can get messed up on machines where the cycle counters are not synchronized between the cores. Since it's difficult to detect thread pinning on all architectures and without pinning the counting can be correct on synchronized machines, we try to detect incorrect counters. We only detect negative cycle counts, but that should catch nearly all cases. When we detected an invalid count, we ignore the cycles counted and do not print the cycle accounting table. Dynamic load balancing is never disabled, because a few incorrect load measurements do not cause problems here.

Fixes #1821
Change-Id: I076ad685a043f1f0b913a9b089ebea43a62534f5

Revision 529fb9e4 - 10/20/2015 01:39 AM - Mark Abraham
Fix cycle subcounters

The MPI receive buffer has to be as long as the send buffer, but the problem can only be seen if you compile with the subcounters on.

Refs #1821
Change-Id: I3326db7f0b07ee76a8f029ac58825eaf4b0b401

History
#1 - 09/14/2015 03:23 PM - Mark Abraham
It was added recently in 033fdccc and even thought it has now changed form, the assertion only fires in a Debug-mode build. Its purpose is to try to find issues in Jenkins, which we're now seeing.

We could certainly print the values here (and similar asserts in that source file) if we think that would help. (Would probably also need a format string defined in timing/cyclecounter.h.) I could do that, but I'm not sure if it would help solve the problem.

#2 - 09/14/2015 10:00 PM - Gerrit Code Review Bot
Gerrit received a related patchset '1' for Issue #1821.
Uploader: Berk Hess (hess@kth.se)
#3 - 09/15/2015 10:15 PM - Berk Hess
- Status changed from New to Resolved

Applied in changeset 4dd6716e2191896c0577608081414509e41ee07c.

#4 - 10/17/2015 12:23 PM - Gerrit Code Review Bot
Gerrit received a related patchset '1' for Issue #1821.
Uploader: Mark Abraham (mark.j.abraham@gmail.com)
Change-Id: I3326db7f0b07ee76a8f029ac58825ea4f3b0b401
Gerrit URL: https://gerrit.gromacs.org/5217

#5 - 04/03/2016 08:52 PM - Erik Lindahl
- Status changed from Resolved to Closed