

GROMACS - Bug #1980

warning: "_POSIX_THREAD_CPUTIME" is not defined

05/31/2016 04:21 PM - Patrick Welche

Status: Closed	
Priority: Low	
Assignee: Mark Abraham	
Category: build system	
Target version: 2016	
Affected version - extra info:	Difficulty: uncategorized
Affected version: git master	
Description	
<pre>/usr/src/local/gromacs/src/gromacs/timing/walltime_accounting.cpp:232:27: warning: "_POSIX_THREAD_CPUTIME" is not defined [-Wundef] #if HAVE_CLOCK_GETTIME && _POSIX_THREAD_CPUTIME >= 0</pre>	
as this is sometimes defined in pthread.h. However, why is that test there?	
Is something like the attached what is intended?	
Or up the stakes to -std=c++11 and assume std::chrono implemented everywhere? (Not sure it does per-thread timing)	

Associated revisions

Revision 6d850e72 - 07/01/2016 08:57 PM - Mark Abraham

Fix use of _POSIX_THREAD*

This fixes a couple of aspects of behaviour. Formerly, if _POSIX_THREADS was defined and equal to zero, we might have used clock_gettime and got some kind of error (compiling/linking/runtime behaviour). Similarly, if _POSIX_THREADS was undefined, C99 defines such preprocessor symbols as zero, so we again used clock_gettime inappropriately.

Now we avoid compiler warnings if the symbol is undefined, and when it is defined we use clock_gettime only when POSIX_THREADS has a value such that it is supposed to work.

Adapted this on the BG/Q fix also for gm_x_gettime_per_thread(). Expanded the documentation of why the code is the way it is. Noted future TODO to consider std::chrono.

Fixes #1980

Change-Id: Ib3e40903e2344354074c5328d40e8467f264b51f

History

#1 - 06/01/2016 10:45 AM - Mark Abraham

The test is there because a value of _POSIX_TIMERS > 0 is supposed to promise support for clock_gettime. We should indeed test whether it is defined before we test its value, but merely being defined is not sufficient.

We could indeed replace some of this functionality with std::chrono, but we won't do that for the 2016 release. We also need to reconsider whether we need the functionality of gm_x_gettime_per_thread using CLOCK_THREAD_CPUTIME_ID, given our expectation that the affinity of threads is set if performance is of interest, and we only care about accuracy of timing measurements when performance is of interest.

#2 - 06/01/2016 10:51 AM - Gerrit Code Review Bot

Gerrit received a related patchset '2' for Issue [#1980](#).

Uploader: Mark Abraham (mark.j.abraham@gmail.com)

Change-Id: Ib3e40903e2344354074c5328d40e8467f264b51f

Gerrit URL: <https://gerrit.gromacs.org/5919>

#3 - 06/01/2016 10:51 AM - Mark Abraham

- Status changed from New to Fix uploaded

#4 - 06/01/2016 02:05 PM - Mark Abraham

- Target version set to 2016

#5 - 06/01/2016 03:58 PM - Berk Hess

But from the report I conclude it's still supporting clock_gettime, even though the macro is not defined. I guess we should try to use it anyhow, since the documentation says you need the macro.

PS Mark wrote `_POSIX_TIMERS > 0`, but the code uses `>= 0`.

#6 - 06/01/2016 06:05 PM - Patrick Welche

I didn't check your HAVE_CLOCK_GETTIME test - are you saying that HAVE_CLOCK_GETTIME can be defined even when clock_gettime() isn't supported?

#7 - 06/03/2016 10:05 AM - Berk Hess

Now I'm even more confused.

So we have two macro when can/need to check: HAVE_CLOCK_GETTIME and _POSIX_TIMERS

And Mark says `_POSIX_TIMERS > 0`, where the code says `>= 0`.

Do we need both macro either, or xor ...?

#8 - 06/22/2016 01:38 PM - Mark Abraham

- Assignee set to Mark Abraham

The use of the `>=` was an error I introduced in [690c59fd0f8cff4207fc7b61c2c284ab402566](https://gerrit.gromacs.org/#/c/5919/3). There, I also introduced HAVE_CLOCK_GETTIME so that we also test that the C run-time library (libcrt) can link in the symbol for clock_gettime (which is problematic e.g. with static linking on Crays). We need to use clock_gettime only when it is known to work, and the updated fix at <https://gerrit.gromacs.org/#/c/5919/3> does this.

#9 - 07/03/2016 01:59 PM - Mark Abraham

- Status changed from Fix uploaded to Resolved

Applied in changeset [6d850e72454a0ae16a5560c5b07f366f2af6fbd4](https://gerrit.gromacs.org/#/c/5919/3).

#10 - 07/08/2016 01:48 AM - Erik Lindahl

- Status changed from Resolved to Closed

Files

clock.diff	944 Bytes	05/31/2016	Patrick Welche
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