Gromacs - Feature #1541

MSVC 32bit doesn't support SIMD

06/29/2014 11:47 PM - Roland Schulz

<table>
<thead>
<tr>
<th>Status:</th>
<th>Closed</th>
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<td>Priority:</td>
<td>Low</td>
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<td>Assignee:</td>
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**Description**

Compiling with MSVC a 32bit binary fails unless setting GMX_SIMD=None, because we pass gmx_simd_real_t per argument. I assume we don't plan to fix this. But we should mention in the install guide that it isn't supported. We might also want to put either an error in CMakeLists (saying that 5.0 doesn't support building a fast binary for Win32 and that one should use 4.6 for Win32) or automatically set GMX_SIMD to none.

**Associated revisions**

Revision 4b120dde - 08/20/2014 06:20 PM - Erik Lindahl

Enable SIMD register calling convention with gmx_simdcall

Cmake now checks if the compiler supports _vectorcall or _regcall calling convention modifiers, and sets gmx_simdcall to one of these if supported, otherwise a blank string. This should enable 32-bit MSVC to accept our SIMD routines (starting from MSVC 2013), and with ICC it can at least in theory improve performance slightly by using more registers for argument passing in 64-bit mode too. Presently this is only useful on x86, but the infrastructure will work if we find similar calling conventions on other architectures.

Fixes #1541.

Change-Id: i7026fb4e1f6b08b8c8a1b060a631cbb80231cd4

**History**

#1 - 07/03/2014 09:59 AM - Erik Lindahl

- Tracker changed from Bug to Feature
- Priority changed from Normal to Low

This is a well-known bug in the MSVC compiler that Microsoft never appears to want to fix. While they claim it's an integral part of their ABI, as far as I recall it works great using ICC. Not really a Gromacs bug we can fix, but maybe it would be good recommending a different compiler.

#2 - 07/03/2014 06:35 PM - Roland Schulz

VS2013 supports it if using _vectorcall calling convention.
Gerrit received a related patchset '1' for Issue #1541.
Uploader: Erik Lindahl (erik@kth.se)
Change-Id: I7026fb4e1fb6b88c8aa18b060a631cbb80231cd4
Gerrit URL: https://gerrit.gromacs.org/3831

#4 - 07/28/2014 08:39 PM - Erik Lindahl
- Status changed from New to Fix uploaded

#5 - 08/25/2014 06:22 AM - Roland Schulz
- Status changed from Fix uploaded to Closed