CMake 3.14.1 fails to properly run gmxDetectCpu.make

Description
CMake is not able to compile cpuinfo.cpp when compiling GROMACS 2019.1 on Piz Daint (Cray system) with CMake version 3.14.1.

The reported error is

```
-- Did not detect build CPU vendor - detection program did not compile
```

The reason is a wrong placement of quotes by CMake. Note the opening of the quotes on the variable GMX_X86_GCC_INLINE_ASM and the closing just after the variable GMX_TARGET_X86.

```
/tmp/gpu/GROMACS/2019.1/CrayGNU-19.03/gromacs-2019.1/src/gromacs/hardware/cpuinfo.cpp:60:14: fatal error: gmxpre.h: No such file or directory
    # include "gmxpre.h"
    ^~~~~~~~~~
compilation terminated.
```

Older version of CMake generate the quote placement.

Alternatives are to use an older version of CMake. Or to set the GMX_SIMD flag manually.

Or

Remove the quotes on the definition of the _compile_definitions variable inside the cmake/gmxDetectCpu.cmake file.

Which means, change from

```
set(_compile_definitions "${GCC_INLINE_ASM_DEFINE} -I${PROJECT_SOURCE_DIR}/src -DGMX_CPUINFO_STANDALONE ${GMX_STDLIB_CXX_FLAGS} -DGMX_TARGET_X86=${GMX_TARGET_X86_VALUE}"
```

to

```
set(_compile_definitions ${GCC_INLINE_ASM_DEFINE} -I${PROJECT_SOURCE_DIR}/src -DGMX_CPUINFO_STANDALONE ${GMX_STDLIB_CXX_FLAGS} -DGMX_TARGET_X86=${GMX_TARGET_X86_VALUE})
```

History

#1 - 04/24/2019 05:25 PM - Szilárd Páll
- Target version set to 2019.3

#2 - 04/25/2019 11:21 AM - Szilárd Páll
Sounds like a cmake bug, have you filed a report with cmake?

#3 - 06/05/2019 04:07 PM - Paul Bauer
Hello, any updates on if this is a CMake bug?

#4 - 06/10/2019 01:34 PM - Paul Bauer
- Status changed from New to Feedback wanted
- Target version changed from 2019.3 to 2019.4

#5 - 06/11/2019 02:42 PM - Victor Rusu
Paul Bauer wrote:

Hello, any updates on if this is a CMake bug?

Dear Paul, I checked newer versions of CMake, for me the issue is gone. So, I think we can close the issue.

#6 - 06/22/2019 02:12 AM - Yoshitaka Moriwaki
Hi,

This issue still occurs when compiling GROMACS 2019.3 with CMake 3.14.5 on macOS Mojave 10.14.5. With the hack for cmake/gmxDetectCpu.cmake, CPU detection worked correctly.

#7 - 07/16/2019 02:46 PM - Szilárd Páll
Victor Rusu wrote:

Paul Bauer wrote:

Hello, any updates on if this is a CMake bug?

Dear Paul, I checked newer versions of CMake, for me the issue is gone. So, I think we can close the issue.

Which newer version did you check, can you please let us know?

If 3.14.5 still has the issue, than there is a problem to solve.

#8 - 08/07/2019 06:30 PM - Ricardo Silva
Hello,

We have found the same issue in our builds and would like to contribute with a couple of datapoints:

We are building gromacs 2019.2 and see this issue with both cmake 3.14.4 and 3.15.1.

Patching the cmake/gmxDetectCpu.cmake file as mentioned above solves the issue with both versions.

Let me know if I can provide any other information that might help.

#9 - 10/01/2019 11:13 AM - Paul Bauer
- Target version changed from 2019.4 to 2019.5

no fix in sight for 2019.4

#10 - 11/09/2019 12:34 AM - Christoph Junghans
Spack patches around this issue as well:

#11 - 11/12/2019 10:30 AM - Ricardo Silva
Hello,

We actually found that the patch we had is no longer necessary for 2019.4 as there seems to have been some work done in the CPU detection cmake files which make not necessary any more. (And I suspect Christoph Junghans found the same as he committed the corresponding change on the Spack repo.)

In short, it needs verification, but I think this was actually solved in the 2019.4.

#12 - 12/06/2019 11:43 AM - Paul Bauer
hello, can you confirm that this is fixed since 2019.4? Then I can close the issue here
Paul Bauer wrote:

hello, can you confirm that this is fixed since 2019.4? Then I can close the issue here

I have tested cmake 3.16 for gmx2019.4, it is good. But, for gmx2019.3, it is always wrong.

Victor Rusu wrote:

I have also tested with CMake 3.14.0, CMake 3.14.1, CMake 3.14.5 and CMake 3.15.4 and the 2019.4 version. In all cases, the CMake test was able to detect the CPU architecture.

I think the issue can be closed

Paul Bauer wrote:

- Status changed from Feedback wanted to Closed

ok, thank you!