two unit tests fail on 32-bit ARM

On a 32-bit ARM (Tegra 3) platform with up-to-date Ubuntu 12.04.4 LTS the LegacyToolsTests and MdrunTests unit tests fail with segfault.

Attached are the CMake cache, make check output, and mdrun -version output. The configure command used:

```
CC=gcc-4.7 CXX=g++-4.7 cmake ../ -DGMX_GPU=OFF -DGMX_BUILD_OWN_FFTW=ON
```

Note that the version is flagged “dirty” because the Random123 library does not officially support ARM and the #error at src/external/Random123-1.08/include/Random123/features/gccfeatures.h:38 preventing compilation needs to be disabled.
#1 - 06/30/2014 07:51 PM - Szilárd Páll
- File gmx-version.out added
- File CMakeCache.txt added
- File make-check.log added

#2 - 07/01/2014 08:52 AM - Roland Schulz
Can you add a stacktrace?

#3 - 07/01/2014 03:00 PM - Szilárd Páll
- Related to Task #1545: test Random123 on unsupported platforms added

#4 - 07/01/2014 09:03 PM - Szilárd Páll
Both tests fail with "Bus error".
With the LegacyToolsTests the crash happens at the 6th test:

```
[----------] 5 tests from NoFatalErrorWhenWritingFrom/TrjconvWithIndexGroupSubset
[ RUN     ] NoFatalErrorWhenWritingFrom/TrjconvWithIndexGroupSubset,WithDifferentInputFormats/0
Will write tng: Trajectory file (tng format)
Select group for output
Group  0 ( System) has  6 elements
Group  1 (FirstWaterMolecule) has  3 elements
Group  2 (SecondWaterMolecule) has  3 elements
Select a group: Selected 2: 'SecondWaterMolecule'
Bus errorframe 1 time 0.000 -> frame 1 time 0.000
```

The MdrunTest fails right after the following output:

```
starting mdrun 'spc-and-methanol'
6 steps,  0.0 ps.
```

I suspect that both of these may be related to TNG, but let me get some backtraces to confirm.
Below is the bactrace for mdrun-test. This indicates that the issue is in the TNG compression function and based on the SIGBUS, my guess is that this is perhaps an alignment issue.

Program received signal SIGBUS, Bus error.
0x005e78f2 in quantize_float (x=0x25b6323, natoms=3, nframes=2, precision=0.000999999931, quant=0x25b6370)
at/home/pszilard/data/gromacs-5.0/src/external/tng_io/src/compression/tng_compress.c:91
#1 0x005e9d34 in tng_compress_pos_float (pos=0x25b6323, natoms=3, nframes=2, desired_precision=0.00100000005, speed=0, algo=0x16129e8, nitems=0xbe7c11ec) at /home/pszilard/data/gromacs-5.0/src/external/tng_io/src/compression/tng_compress.c:1248
#2 0x005e9e2e in tng_compress_pos_float_find_algo (pos=0x25b6323, natoms=3, nframes=2, desired_precision=0.00100000005, speed=0, algo=0x16129e8, nitems=0xbe7c11ec) at /home/pszilard/data/gromacs-5.0/src/external/tng_io/src/compression/tng_compress.c:1279

Update:
It is an alignment issue.

$ dmesg | tail -n4
[364077.687276] Switched to NOHz mode on CPU #1
[364078.447618] Alignment trap: not handling instruction ed937a00 at [005e78ee]
[364078.460748] Unhandled fault: alignment exception (0x0) at 0x16112a0
[364079.950780] CPU1: shutdown

[13 more frames left out]
#6 - 07/02/2014 12:00 PM - Teemu Murtola
- Duplicated by Bug #1546: Legacy tools tests failed on armv7a with SIGBUS added

#7 - 07/02/2014 12:00 PM - Teemu Murtola
- Duplicated by Bug #1547: MDRUN tools tests failed on armv7a with SIGBUS added

#8 - 07/02/2014 01:01 PM - Magnus Lundborg
- Assignee set to Magnus Lundborg

I'm working on this. There should be a fix within a few days.

#9 - 07/02/2014 01:03 PM - Magnus Lundborg
- Status changed from New to In Progress

#10 - 07/11/2014 10:32 AM - Magnus Lundborg
- Related to Bug #1559: Writing TNG files fails on Xeon Phi added

Gerrit received a related patchset '1' for Issue #1542.
Uploader: Magnus Lundborg (magnus.lundborg@sciifelab.se)
Change-id: I96e0704d3858264ca918603b1d7e3b27b4db7ea
Gerrit URL: https://gerrit.gromacs.org/3799

#12 - 07/11/2014 12:37 PM - Magnus Lundborg
- Status changed from In Progress to Fix uploaded

#13 - 07/15/2014 09:12 AM - Teemu Murtola
- Category set to core library
- Target version set to 5.1

#14 - 08/25/2014 06:15 AM - Roland Schulz
- Status changed from Fix uploaded to Closed

Files

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<th>File</th>
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<td>Szilárd Páll</td>
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<td>CMakeCache.txt</td>
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