

## GROMACS - Task #2826

### introduce ssize free function

01/09/2019 09:58 AM - Mark Abraham

<b>Status:</b>	Closed
<b>Priority:</b>	Low
<b>Assignee:</b>	
<b>Category:</b>	core library
<b>Target version:</b>	
<b>Difficulty:</b>	uncategorized
<b>Description</b>	
<p>We often have to use <code>static_cast&lt;gm::index&gt;(i) &lt; stdcontainer.size()</code> when we have indices declared as <code>int</code>.</p> <p>At <a href="https://gerrit.gromacs.org/#/c/8826/3..9/src/gromacs/mdlib/nbnxn_search.cpp.unified">https://gerrit.gromacs.org/#/c/8826/3..9/src/gromacs/mdlib/nbnxn_search.cpp.unified</a>, Roland suggested to avoid the cast we could add to basedefinitions:</p> <pre>template&lt;typename T&gt; gm::index gm::ssize(T t) { return t.size(); }</pre> <p>Then this can be <code>if(ssize(nbl.cj) &gt; ncj_old_j)</code>. This matches what will be in C++20 to solve this signed/unsigned issue.</p> <p>This is not yet formally adopted for C++20 (but the standard library working group is in favour of <a href="http://www.open-std.org/jtc1/sc22/wg21/docs/papers/2018/p1227r0.html">http://www.open-std.org/jtc1/sc22/wg21/docs/papers/2018/p1227r0.html</a>). But we could implement it as <code>gm::compat::ssize</code> anyway.</p> <p>Then we can eliminate a bunch of <code>static_cast</code> in favour of this less intrusive syntax.</p>	

#### Associated revisions

##### Revision 35d429a0 - 02/07/2019 11:26 AM - Roland Schulz

Add `ssize` and remove `static_casts`

Fixes #2826

Change-Id: I8cb3b64764798b164b355e71fb10874b49060a0a

##### Revision 55c76c88 - 02/07/2019 11:42 AM - Roland Schulz

Revert `size` to be unsigned for `ArrayRef`

Given the decision for `std::span` to be signed this became inconsistent with future C++ while already being inconsistent with `std::vector`. The goal of the original change, to have signed variables for all arithmetic including loop indices, can be achieved by using `ssize` everywhere arithmetic is used. `ssize` is both available as free function (also for `std::vector`) and member function.

Related #2826

Change-Id: Icc5d0f9561c610cbce34c575d268171e9890ca9c

#### History

##### #1 - 02/06/2019 12:53 AM - Gerrit Code Review Bot

Gerrit received a related patchset '1' for Issue [#2826](#).

Uploader: Roland Schulz ([roland.schulz@intel.com](mailto:roland.schulz@intel.com))

Change-Id: gromacs~master~I8cb3b64764798b164b355e71fb10874b49060a0a

Gerrit URL: <https://gerrit.gromacs.org/9091>

##### #2 - 02/06/2019 01:19 AM - Gerrit Code Review Bot

Gerrit received a related patchset '1' for Issue [#2826](#).

Uploader: Roland Schulz ([roland.schulz@intel.com](mailto:roland.schulz@intel.com))

Change-Id: gromacs~master~Icc5d0f9561c610cbce34c575d268171e9890ca9c

Gerrit URL: <https://gerrit.gromacs.org/9093>

**#3 - 02/07/2019 11:42 AM - Roland Schulz**

- *Status changed from New to Resolved*

Applied in changeset [35d429a0bdd16f216bcc055c5c4018a10d0e02f1](#).

**#4 - 02/27/2019 05:43 PM - Paul Bauer**

- *Status changed from Resolved to Closed*