

cet-is - Support #15597

Include single precision libfftw3f for next FFTW3 UPS product build

02/20/2017 12:57 PM - Brett Viren

| | | | |
|--|------------------|------------------------|-------------------|
| Status: | Closed | Start date: | 02/20/2017 |
| Priority: | Normal | Due date: | |
| Assignee: | Lynn Garren | % Done: | 100% |
| Category: | | Estimated time: | 10.00 hours |
| Target version: | | Spent time: | 7.30 hours |
| Scope: | Internal | SSI Package: | |
| Experiment: | DUNE, MicroBooNE | Co-Assignees: | |
| Description | | | |
| <p>The default build of FFTW3 does not include libfftw3f which provides single-precision floating point FFT functions. By default only the double-precision libfftw3 is built.</p> <p>The x2 inflation of holding full LArTPC plane or APA readouts in memory as doubles substantially increases the RAM footprint and brings no benefit.</p> <p>Holding readouts as float and then upcasting to double for the FFT adds a 15% CPU overhead.</p> <p>So, I request that libfftw3f be built next time FFTW3 and the things it depends on can be rebuilt.</p> <p>For now this is blocking the "wirecell" v0_5_0 UPS product build. This release brings speed increases (directly due to using FFTW), better signal protection during coherent noise subtraction, and configurable knobs for some of the algorithms.</p> | | | |
| Related issues: | | | |
| Related to LArSoft - Support #15565: wirecell 0.5.0 | | Closed | 02/16/2017 |

History

#1 - 02/21/2017 02:33 PM - Lynn Garren

- Status changed from New to Assigned

- % Done changed from 0 to 10

- Estimated time set to 10.00 h

fftw v3_3_6_pl1a has been tagged and is ready for inclusion in a product stack. Both the regular (double precision) and single precision libraries are included. Note that this is only a small part of the work required.

#2 - 02/22/2017 08:58 AM - Brett Viren

I was going to test a build of Wire Cell Toolkit against this new build of FFTW3 but I don't find it installed as a UPS product under:

```
/grid/fermiapp/products/*/fftw/
```

Is it available somewhere from the dunegpvmXX nodes?

#3 - 02/22/2017 09:08 AM - Lynn Garren

It has not yet been installed. I will do that now.

#4 - 03/23/2017 12:16 PM - Brett Viren

I made a minor release 0.5.1 which adds "regex" Boost library to the link as it wasn't being picked up on all platforms implicitly.

Lynn, I still need to apply your GCC 6.3 fixes for the WCT build bugs you found!

#5 - 03/24/2017 03:59 PM - Brett Viren

I made a release with the GCC 6.3 patch from Lynn and an option to use double-precision FFTW.

<https://github.com/WireCell/wire-cell-build/releases/tag/0.5.2>

This ticket is related to

#6 - 03/24/2017 08:07 PM - Lynn Garren

- *Related to Support #15565: wirecell 0.5.0 added*

#7 - 04/06/2017 09:08 PM - Lynn Garren

- *Status changed from Assigned to Resolved*

- *% Done changed from 10 to 100*

The single precision libfftw3f is part of fftw v3_3_6_pl1a. This is now distributed with art v2_06_03 and larsoft v06_30_00 and later.

#8 - 05/08/2017 03:00 PM - Lynn Garren

- *Status changed from Resolved to Closed*