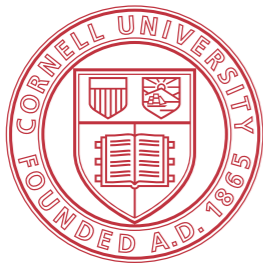


# PR#56

mic-track meeting, 2016-06-24



**Cornell University**  
Laboratory for Elementary-Particle Physics



# PR#56

## TBB Fitter

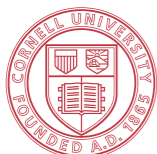
- Use numSeedsPerTask similarly to builder
- Use SlurpInTracksAndHits() for full Matriplexes, InputTracksAndHits() for any partial Matriplex at the end of the loop (residual could be moved out of the loop)
- Added some fit diagnostics based on code Matthieu wrote for the GPU

## TBB Builder TTBarPu35 scaling fix

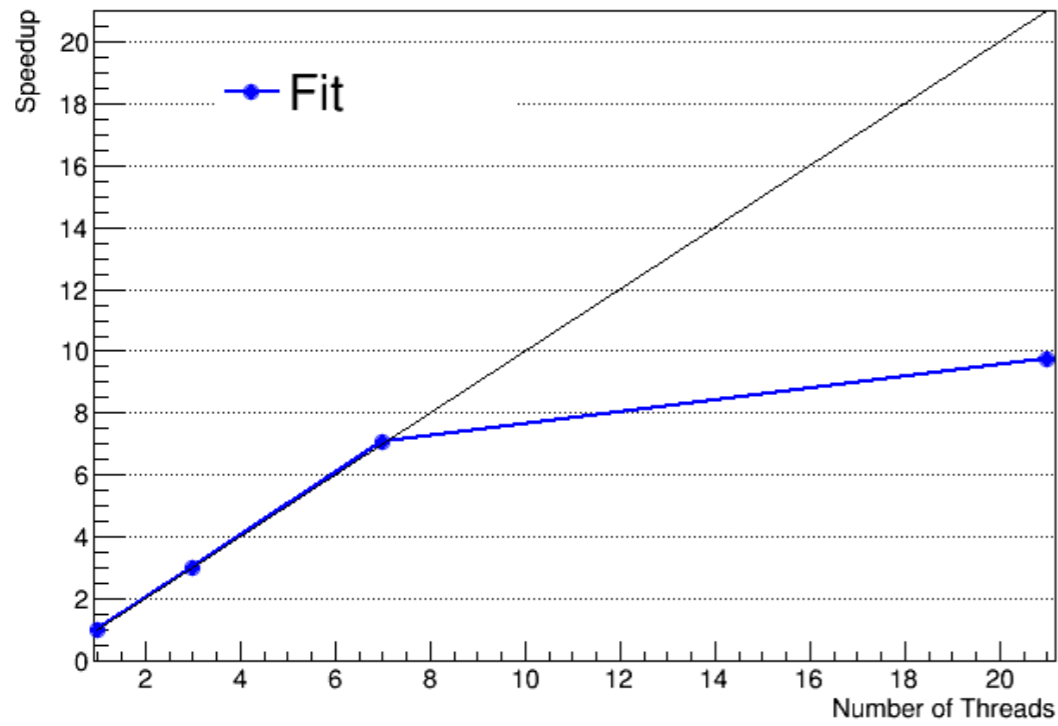
- Added an adaptive calculation to lower numSeedsPerTask if the configured value would not give all threads work to do
- Bin-by-bin estimate of seedsPerTask =  $n\text{EtaBin} * \text{seedsInEtaBin} / n\text{Threads} / 2$
- Relies on work stealing to balance load when track distribution is non-uniform

## Bug Fixes

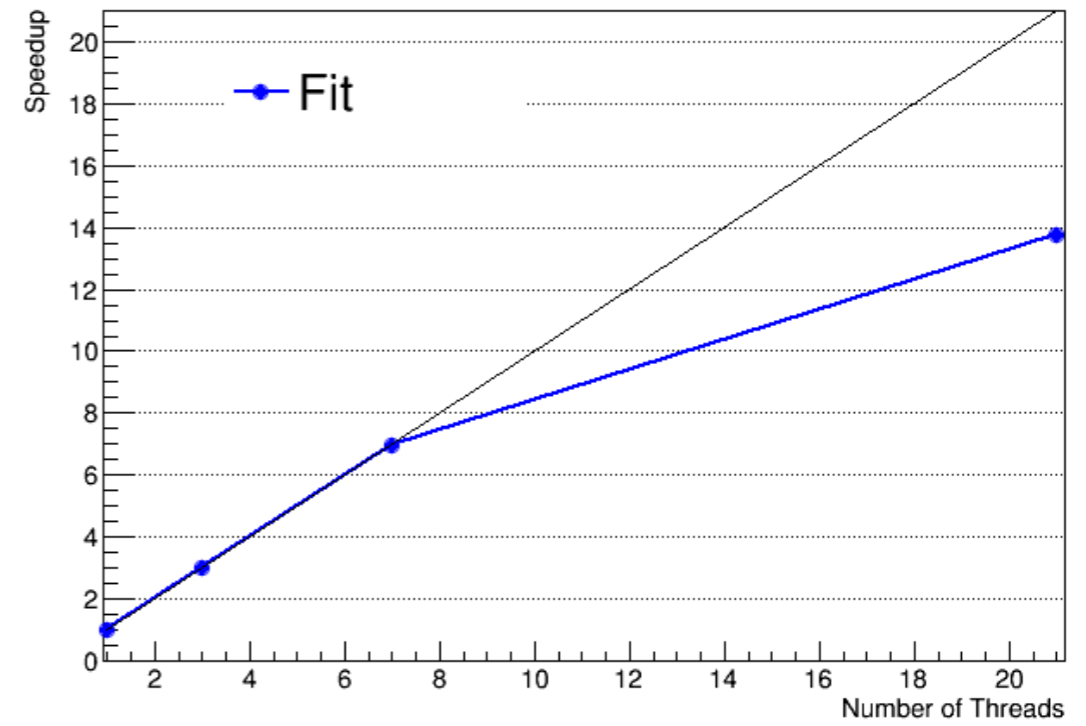
- zbin calculation was overflowing (due to hits smeared off the end of the detector?)
- Fixing this slightly improved # of hits and changed the platform and vector length variability...remaining variability from other, similar bugs?



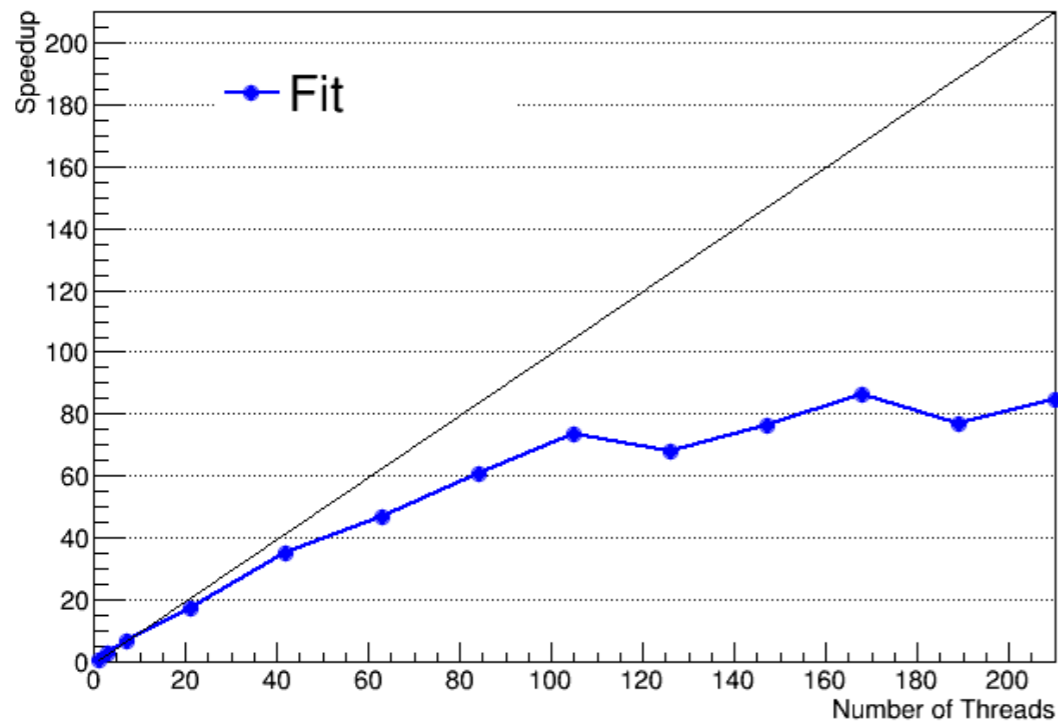
Parallelization speedup on Xeon



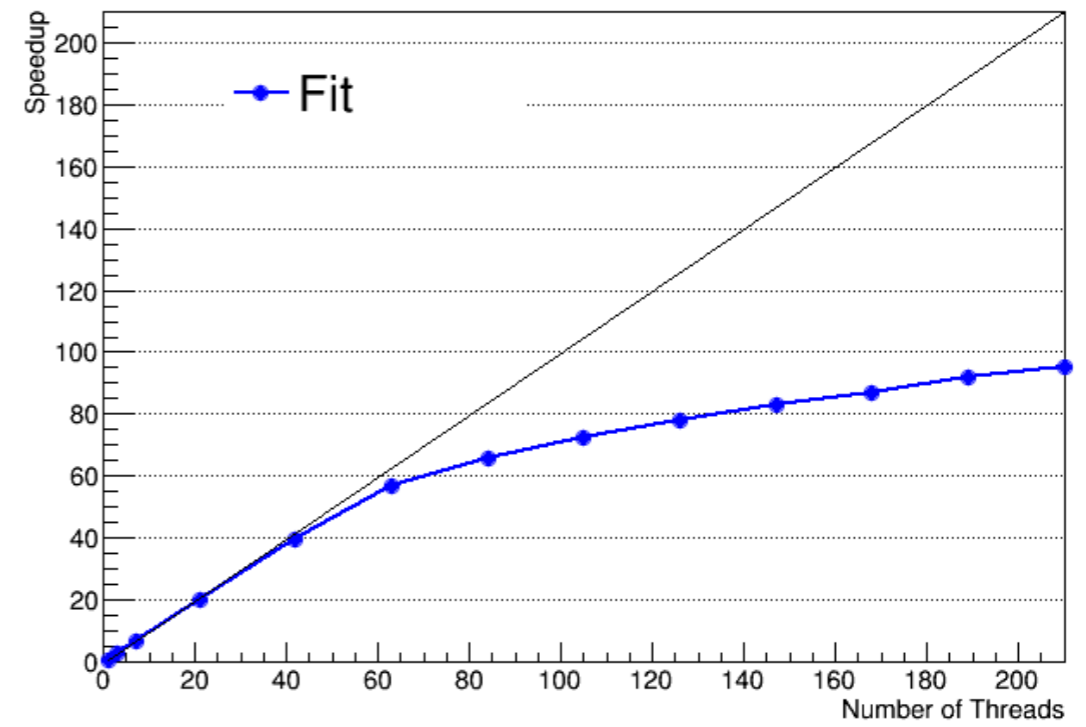
Parallelization speedup on Xeon



Parallelization speedup on Xeon Phi



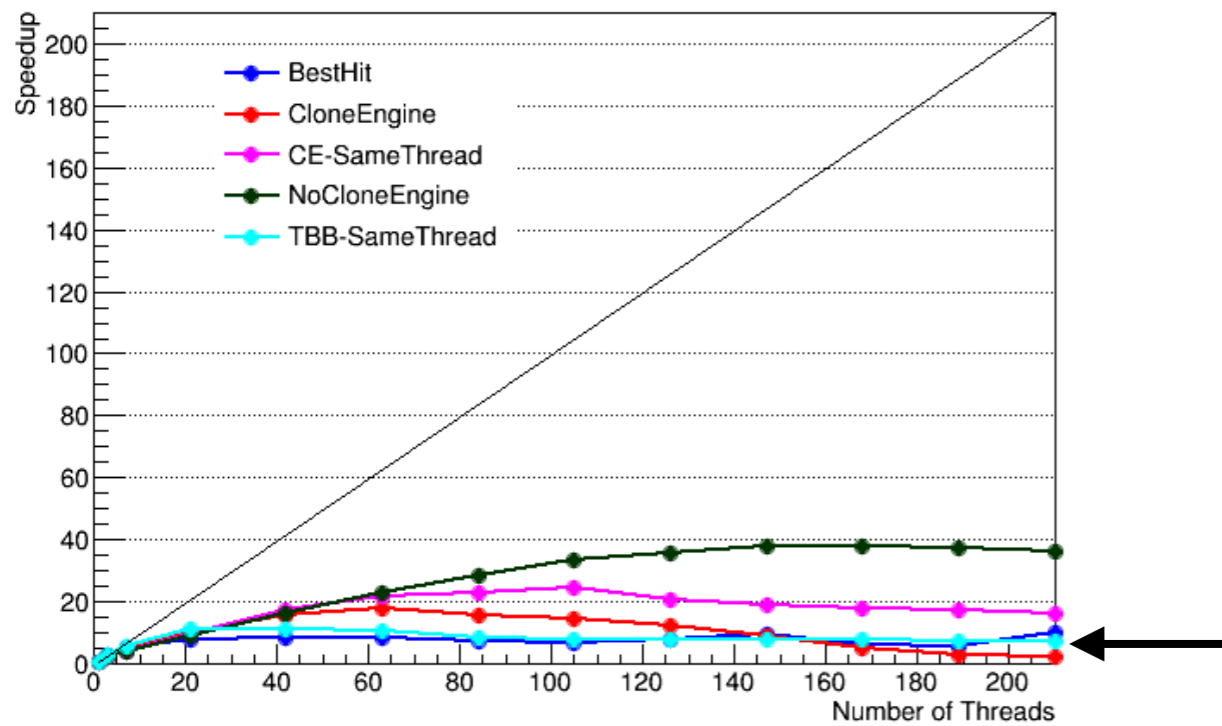
Parallelization speedup on Xeon Phi



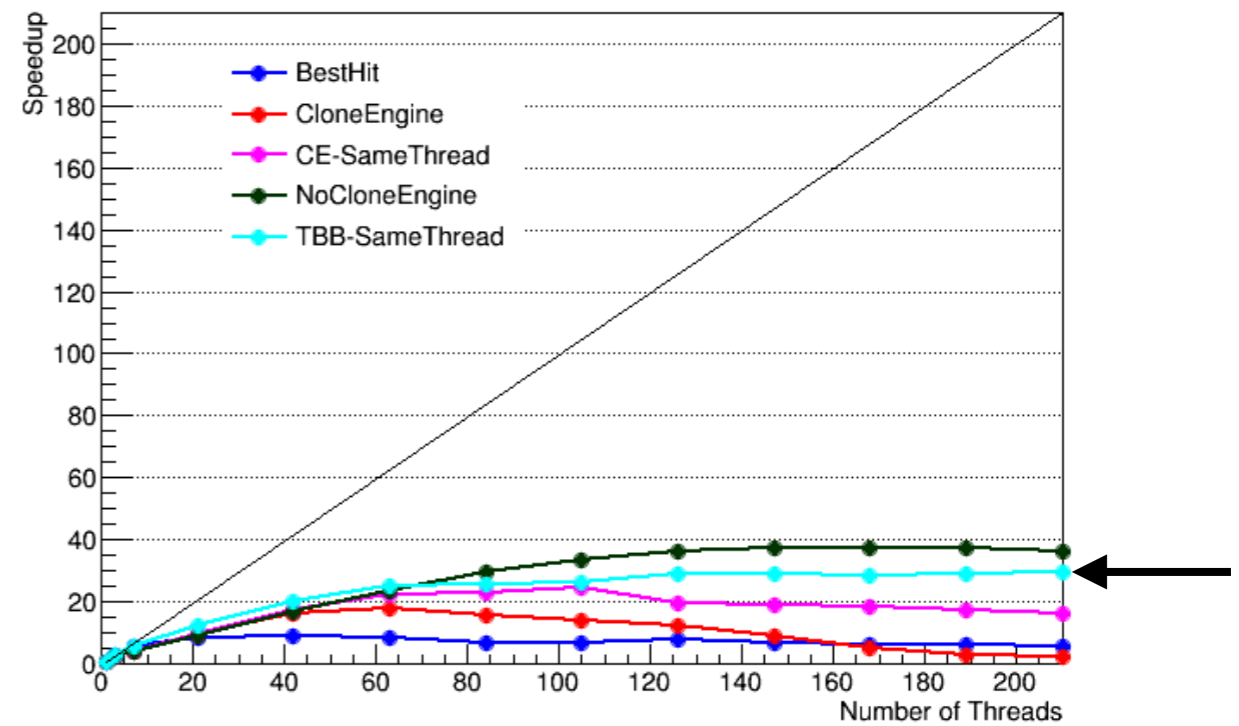
**PR#55 OMP Fitter**

**PR#56 TBB Fitter**

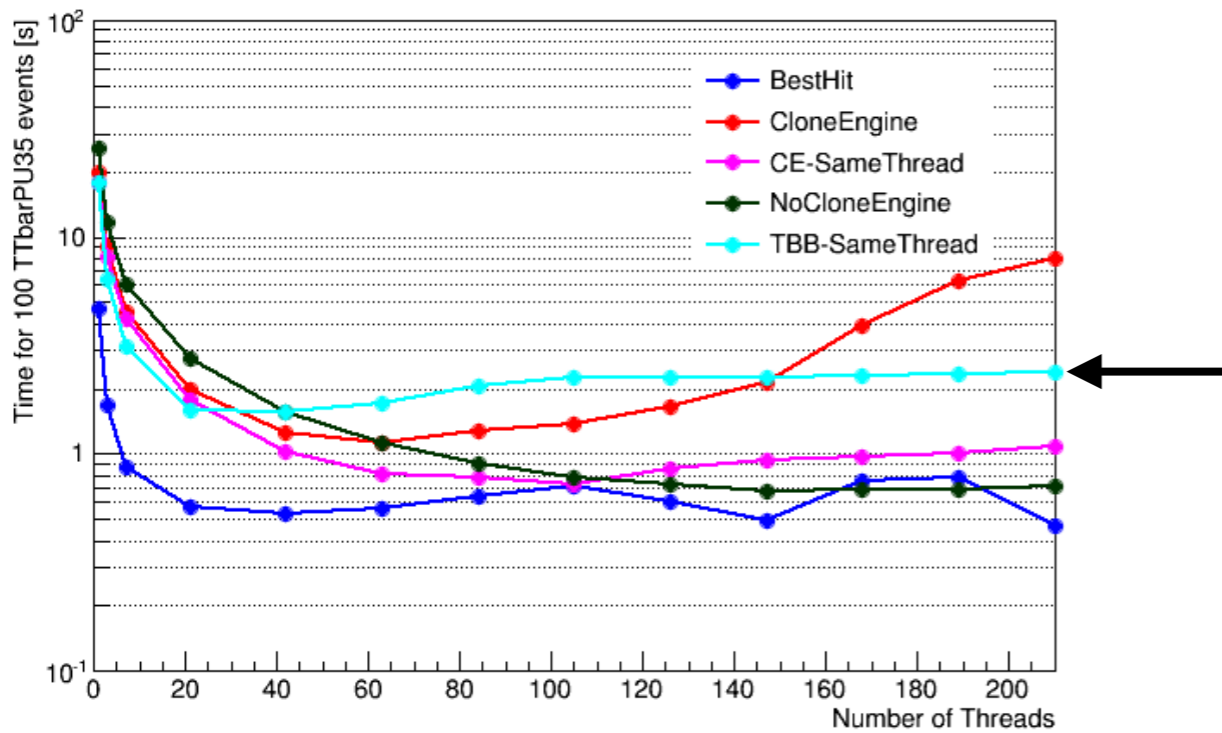
Parallelization speedup on Xeon Phi



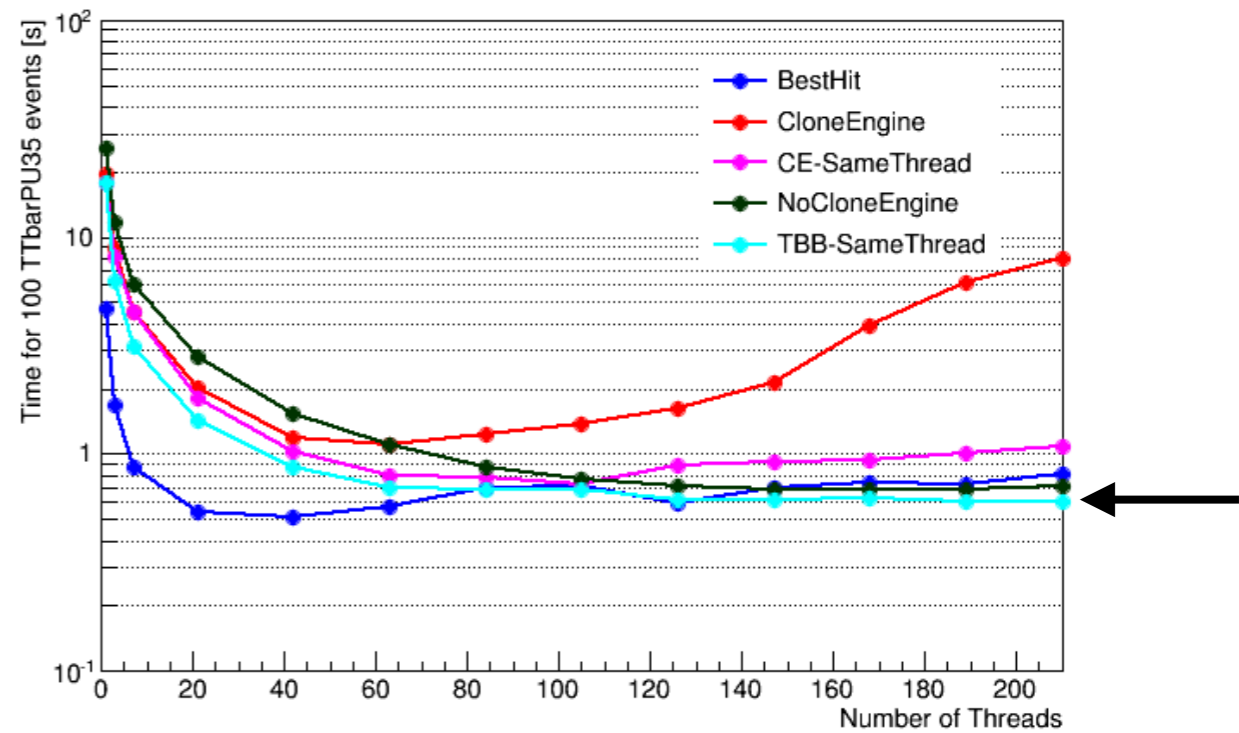
Parallelization speedup on Xeon Phi



Parallelization benchmark on Xeon Phi



Parallelization benchmark on Xeon Phi



PR#55 CMSSW TBB Build PR#56