



IPCC ROOT

Princeton/Intel Parallel Computing Center

Progress Report

Vassil Vassilev, PhD

14.06.2017

Status 09.05-2017 — 13.06.2017

- ❖ An Intel Showcase Presentation Scheduled on 06.07.2017 at 17:00 CET
- ❖ The prototype for thread-based parallel file merging in GeantV was rewritten. The new TBufferMerger and TBufferMergerFile classes were released in ROOT 6.10. This was part of our work plan for Q4:
 - ❖ The ROOT team assessed the impact of the item and we rescheduled. The feature landed as a fruitful collaboration by IPCC-ROOT and the ROOT team
 - ❖ The change of the plan won't affect the rest of the IPCC-ROOT deliverables
 - ❖ We expect to hear soon from CMS as they were eager to use it

Status 09.05-2017 — 13.06.2017

- ❖ Enablement of VecCore ramped up the vectorization efforts in ROOT
 - ❖ We see more contributions in that area. For instance, vectorized Chi2 and Unbinned likelihood , PoissonLogL, and some more currently under review.

Status 09.05-2017 — 13.06.2017

- ❖ We got access to KNL and Xeon nodes in OpenLab. Thanks Luca!
 - ❖ We are benchmarking some of the vectorized code
 - ❖ We ran some benchmarks on ROOT's build system on KNL and found a few cmake issues. I suspect we have a bottleneck which might be able to go away
- ❖ We have resurrected the ICC17 nightly builds of ROOT, fixing a few ICC-specific issues
- ❖ We have upgraded ROOT's vendor drop of LLVM in hope to get better code optimization at runtime
 - ❖ Now we can control the runtime optimization levels by specifying `.O <N>`, where N [0-3]

Status 09.05-2017 — 13.06.2017

- ❖ We've enabled some code modernization tools as part of ROOT's pull request review process
 - ❖ Some discussion about tool-aided code modernization is ramping up
 - ❖ CMS is discussing to adopt some of the solutions
- ❖ Misc
 - ❖ more...

Thank you!