



IPCC ROOT

Princeton/Intel Parallel Computing Center

Progress Report

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Status 04.07-2017 — 19.07.2017

- ❖ Working on in-tree benchmarking suite ([PR688](#)).
- ❖ Benchmarking performance of vectorized code.
- ❖ Learning how to use the Intel toolchain.

Preliminary Benchmark Results. GenVector

- ❖ A synthetic benchmark of the LCHb's RICH mirror system. A ray tracer using GenVector operations. Compares vectorized vs scalar mode while checking correctness

N traced photons	9.6K	96K	960K	9600K
SSE (gcc62)	1.8-2.5	2.02	1.73	1.7
AVX2 (gcc62)	2.5-3.3	2.8	1.82	1.77
SSE (icc17)	2.1	2.17	1.77	1.62
AVX2 (icc17)	2.3-3.6	2.8	1.85	1.75
KNL				
SSE (gcc62)	1.96	1.93	1.78	1.77
AVX2 (gcc62)	3.3	2.82	2.81	2.77
AVX 512	TODO	TODO	TODO	TODO

Preliminary Benchmark Results. Unbinned likelihood function

LogL	Speedup
SSE (gcc62)	1.62
AVX2 (gcc62)	3.37
SSE (icc17)	1.04
AVX2 (icc17)	2.13
KNL	
SSE (gcc62)	1.89
AVX2 (gcc62)	5.84
SSE(icc17)	1.23
AVX2 (icc17)	2.8
AVX 512	TODO

Thank you!