

PPS: FY23 Planning

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HEP-CCE All Hands Meeting

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Current Status of Projects

	Kokkos	SYCL	OpenMP	Alpaka	std::par
Patatrack	Done	Done	WIP	WIP	WIP
Wirecell	Done	WIP	WIP	stretch goal	TBD
FastCaloSim	regular: done group: WIP	regular: done group: no	regular: WIP group: TBD	regular: WIP group: TBD	regular: done group: done
P2R	done	Done	Need local var	Done	Done

Plans for FY22 / FY23

- Want to allocate ~6 months to write reports
 - end major code development by April 1 2023
- Project timelines / development plans
 - WCT
 - Finish Kokkos, OpenMP and SYCL ports
 - possible goal: `std::par`
 - stretch goal: alpaka
 - finish standalone testing framework, test interoperability with TBB
 - FCS
 - finish port to OpenMP, Alpaka and Kokkos group sim
 - if have time, do group sim for OMP and Alpaka
 - see what happens with `std::par` and `nvc++`
 - Patatrack
 - fully test AMD and Intel backends
 - finish port to SYCL (done at CERN), OpenMP and `std::par`
 - P2R
 - finish existing ports
 - develop better/more reproducible testing

Plans for FY22 / FY23

- Project timelines / development plans
 - ACTS
 - full chain probably not ready by end of FY22 (hit clusterization, track finding, track fitting: ~15 kernels)
 - what can we do with what's there?
 - SYCL port (code structure is such that majority of functions are shared between CUDA/SYCL)
 - std::par Clusterization
 - We can certainly write up experiences with what's been done, and benchmarks of available code

Preparation for Final Report

- Performance matrix for all testbeds
 - hardware architecture vs portability layer
- Finish details in metrics documents
 - OpenMP, Alpaka, std::par for new efforts
- Common format to report/store results
 - including metadata such as hardware, compiler/library/driver versions, code versions, etc
- Continue benchmarking existing codes as compilers and backends evolve
 - eg ROCm, SCYL and std::par
- Access to testing machines for more consistent reproducibility / comparisons
 - Aurora
 - LBL exalearn machines for A100 and MI100
 - What about Frontier?
- Write report!
 - decide where to publish

	Implementations								
	TBB	CUDA	HIP	Kokkos	Alpaka	Std::par (PSTL)	SYCL	DPL	OpenACC
NVIDIA									
AMD									
Intel									
CPU									

Completed
 In progress
 Under investigation
 Not started

Outreach

- Winter 23: present preliminary reports to experiments
 - during sessions at general meetings of experiments
- Spring 23: technical workshops
 - more technology focussed
 - addressed to wider audience (HEP community)
 - potentially involve HSF and IRIS
 - help develop ideas for our final reports
- Conferences to target
 - ACAT 22 (October 24)
 - PPS overview poster
 - Use case presentations: WCT, P2R
 - CHEP 23 (May 8)
 - Supercomputing 23 (mid Nov)

 - coordinate with IOS
 - have both technical presentations from PPS and overarching from all of CCE