DEEP Projects

Updates

Viktor Khristenko (CERN), Maria Girone (CERN)

Ecal Reco for GPU

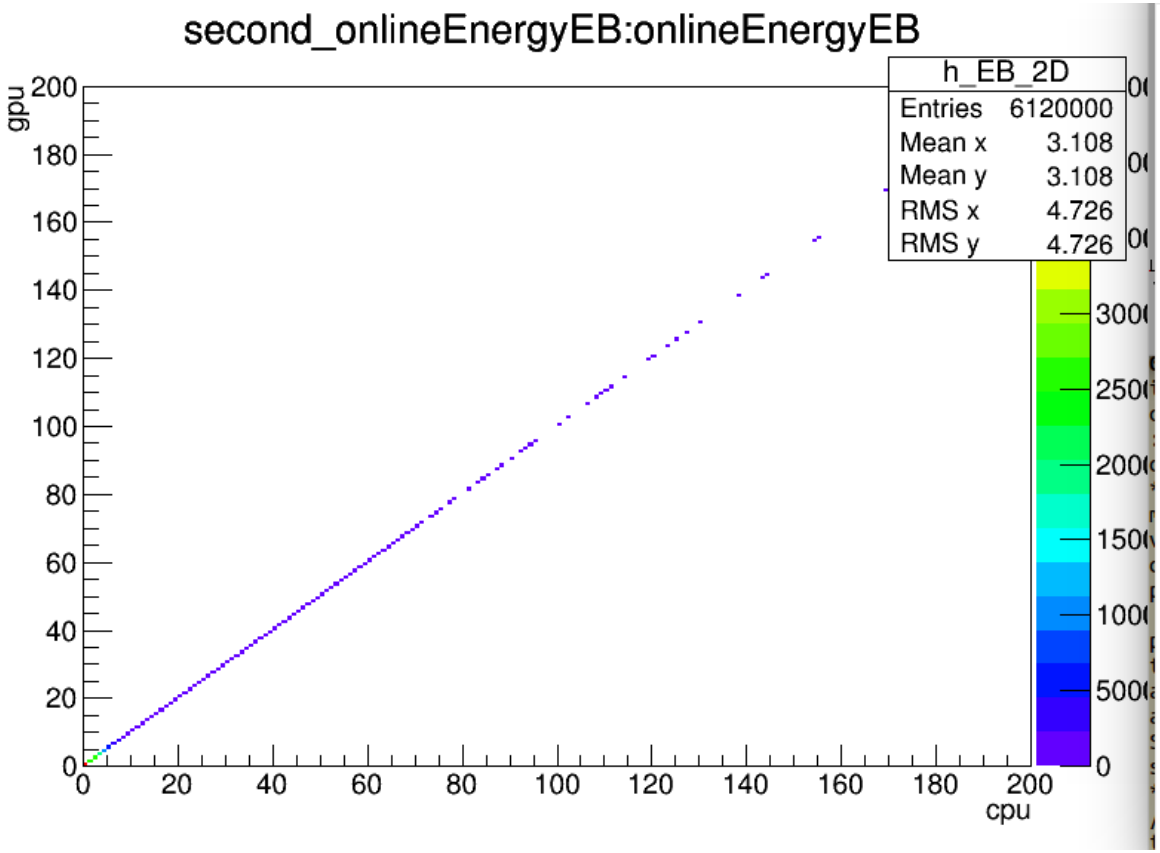
- Just to remind, main activity here is to port existing CPU workload to utilize GPUs and optimize.
  - We are embarrassingly parallel -> no rpc/ipc

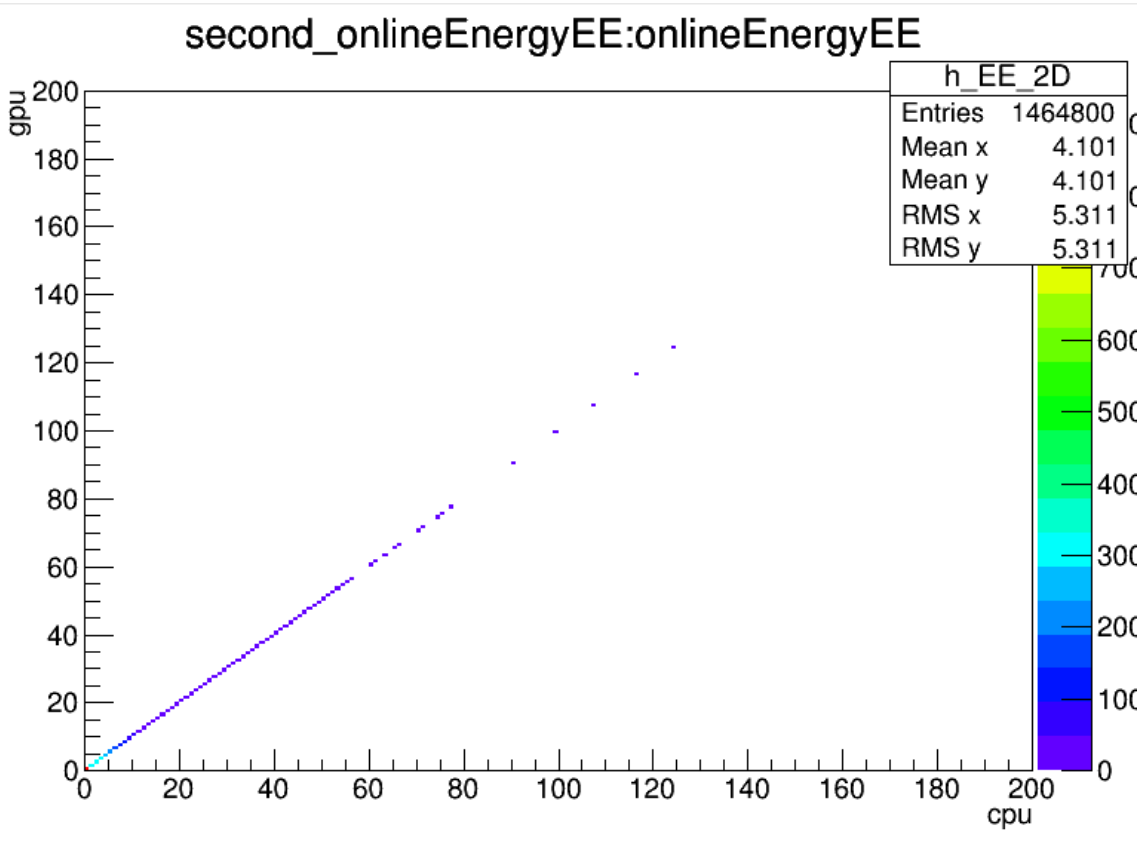
- Full Electromagnetic Calorimeter Reco with CUDA implemented
  - There are a few addons, not required now but will be needed in the upcoming future of LHC

- Integrated with CMSSW
  - Fully integrated with the experiment's framework.

Ecal Reco Validation (GPU vs CPU)

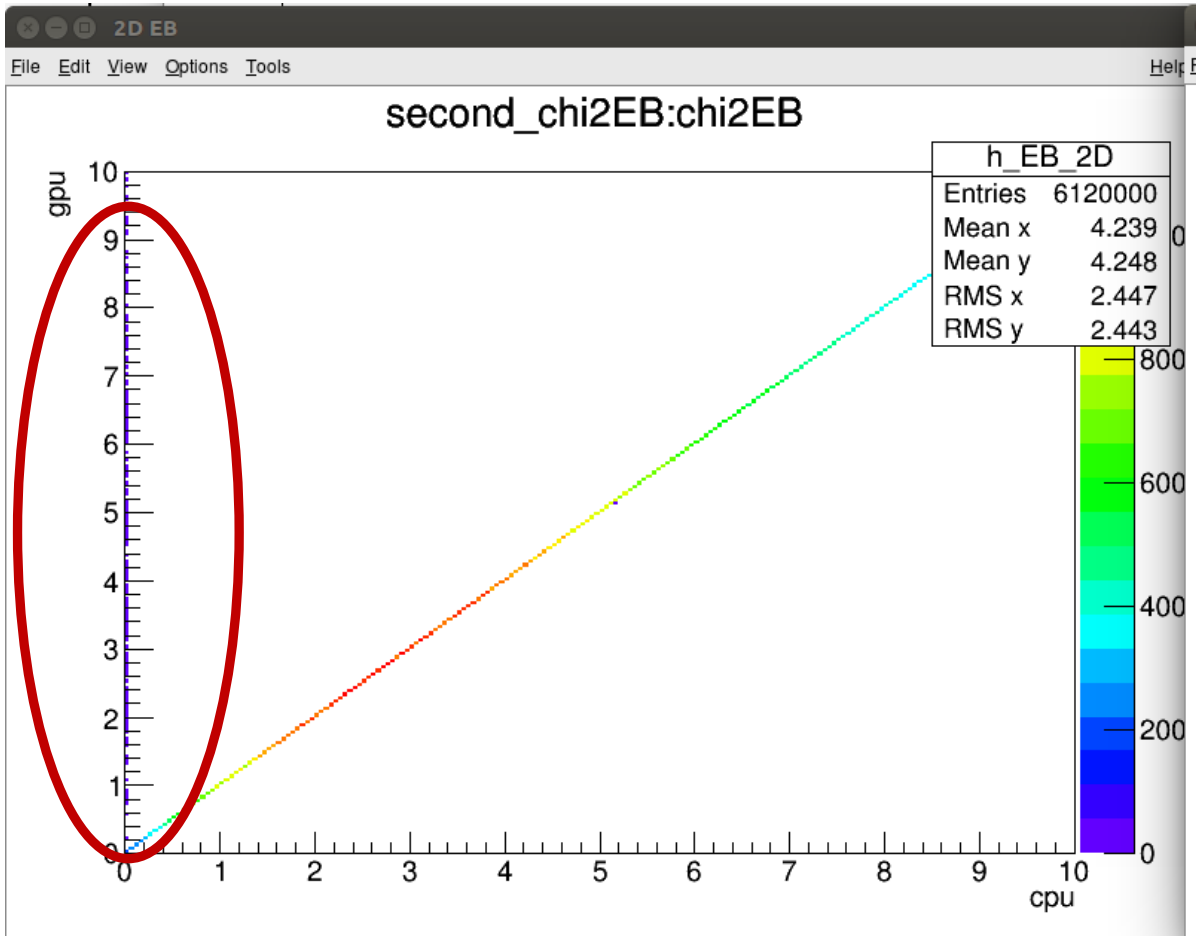
Reconstructed Energy – good match is observed

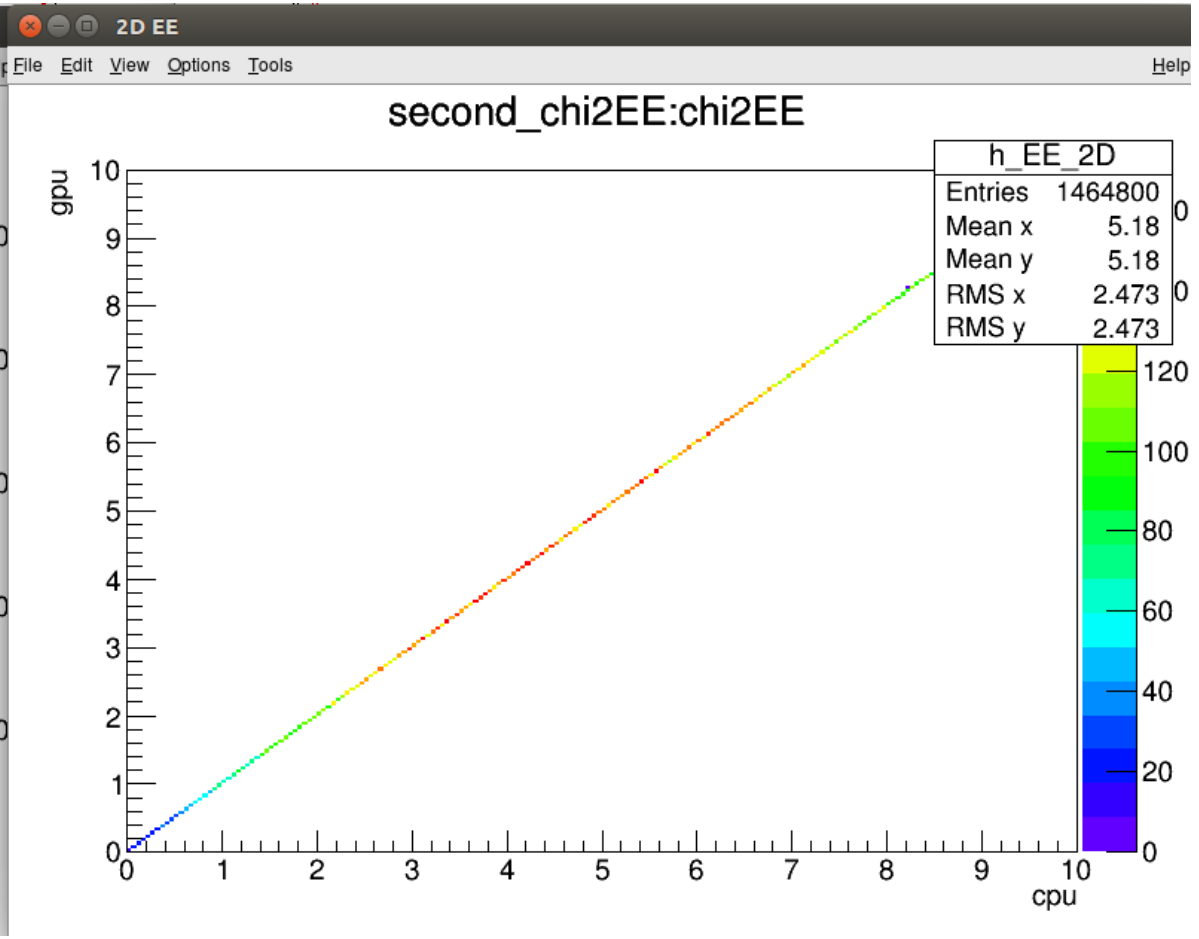




Ecal Reco Validation (GPU vs CPU)

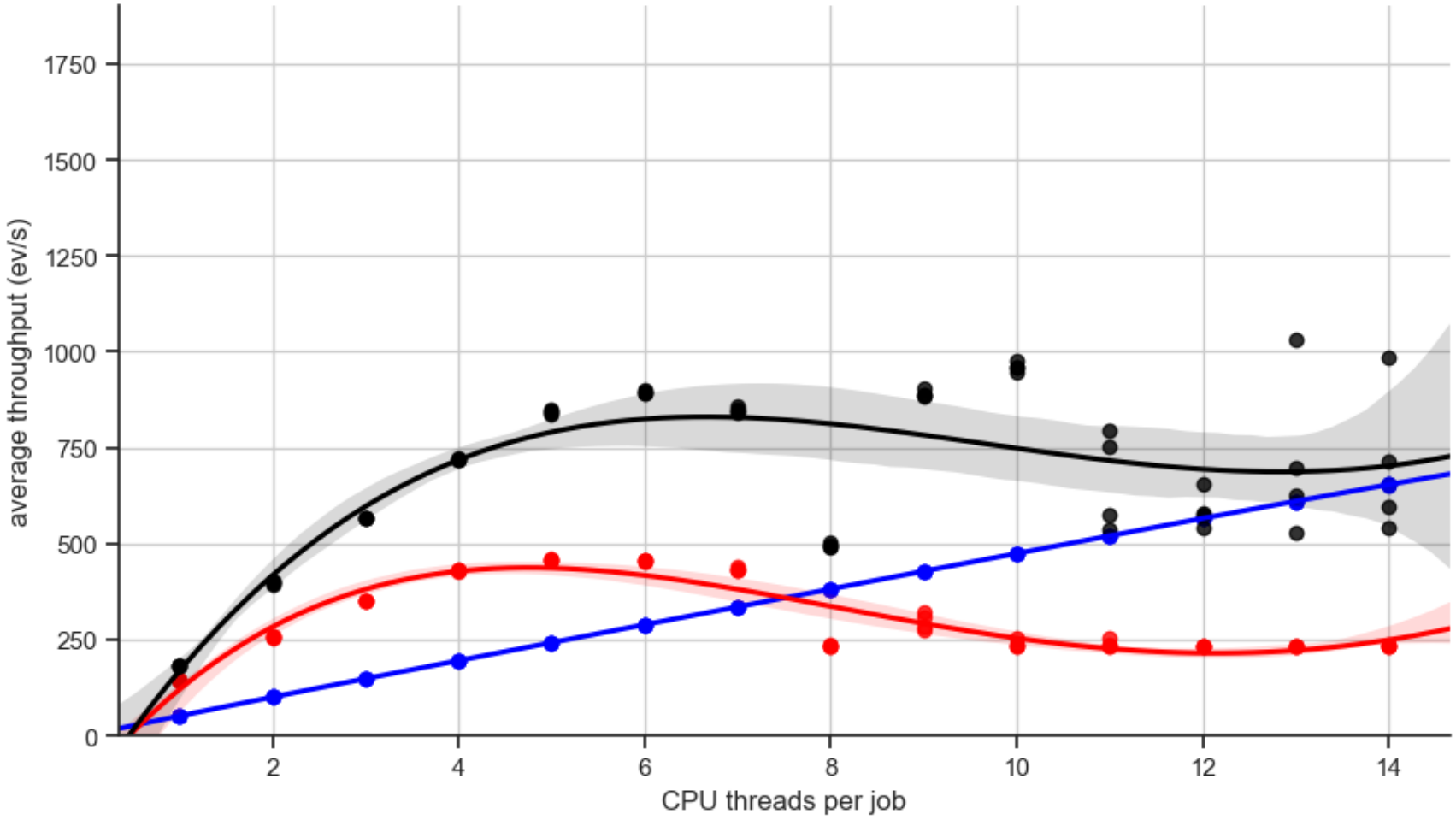
Chi2 – good match





to be resolved

Ecal Reco Throughput (Work in progress)



Intel Xeon Gold 61XX
- pinned cores to same socket
- 14 cores per socket (no ht)

V100 (1 stream per thread)

P100 (1 stream per thread)

No transfers back

There is still room (large)
For improvement
(according to Nsight Compute)

DEEP Projects

The DEEP projects have received funding from the European Union's Seventh Framework Programme (FP7) for research, technological development and demonstration and the Horion2020 (H2020) funding framework under grant agreement no. FP7-ICT-287530 (DEEP), FP7-ICT-610476 (DEEP-ER) and H2020-FETHPC-754304 (DEEP-EST).