

Standalone track-reconstruction on GPUs in LHCb



- New fully software-based LHCb trigger system for Run 3 with HLT1 on GPUs
- Entire new set of tracking detectors (Velo, UT, SciFi) to operate at higher luminosity
- Standalone track-reconstruction for Velo & SciFi followed by a VeloSciFi track matching for long track reconstruction
- Other track types (downstream and T tracks) can be used for extending LHCb's LLP programme
- Total tracking efficiencies for (high- p) long tracks up to 83% (92%) at a ghost rate of 9% (5%)
- Throughput: ~170kHz on NVIDIA RTX A5000 card that is used in Run 3 data taking

