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The sPHENIX fixed latency reconstruction system

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The sPHENIX detector is the next generation experiment at the Relativistic Heavy Ion Collider (RHIC) at Brookhaven National Laboratory. Starting commissioning in May, it will collect high statistics data sets from ultra relativistic Au+Au, p+p and p+Au collisions in the next 3 years. The readout is a combination of triggered readout for calorimeters and streaming readout for the silicon pixel/strip detectors and the time projection chamber (TPC). sPHENIX does not employ high level triggers which would require building events in real-time except for a small subset that is assembled online for monitoring purposes. Events are assembled offline from multiple input streams only during the multi pass offline reconstruction which includes calibration and space charge distortion corrections for the TPC data. This reconstruction will run near real-time within a fixed latency of when the data was taken. To meet its physics requirements sPHENIX has developed state of the art reconstruction software based on the "A Common Tracking Software" (ACTS) package which was adapted to reconstruct the TPC data. The raw data will be processed at the Tier 0 for the RHIC experiments - the Scientific Data Computing Center (SDCC) at BNL. The Production and Distributed Analysis (PanDA) system was chosen as workload management system to handle the complexities of our workflow.

This poster will show the details of the data processing for the sPHENIX experiment.

Category

Experiment

Collaboration (if applicable)

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