

## FutureDAQ for CBM: Online Event Selection

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At the upcoming new Facility for Antiproton and Ion Research FAIR at GSI the Compressed Baryonic Matter experiment CBM requires a new architecture of front-end electronics, data acquisition, and event processing. The detector systems of CBM are a Silicon Tracker System, RICH detectors, a TRD, RPCs, and an electromagnetic calorimeter. The envisioned interaction rate of 10<sup>7</sup> MHz produces a data rate of up to 1 TByte/s. Because of the complexity and variability of trigger decisions no common trigger will be applied. Instead, the front-end electronics of all detectors will be self-triggered and marked by time stamps. The full data rate must be switched through a high speed network fabric into a computational network with configurable processing resources for event building and filtering. The decision for selecting candidate events requires tracking, primary vertex reconstruction, and secondary vertex finding in the STS at the full interaction rate. The essential performance factor is now computational throughput rather than decision latency, which results in a much better utilization of the processing resources especially in the case of heavy ion collisions with strongly varying multiplicities. The development of key components is supported by the FutureDAQ project of the European Union (FP6 I3HP JRA1). The design and first simulation results of such a DAQ system are presented.

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