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# Real-time Performance Control and Monitoring for the PPr-TDAQ integration of ATLAS Upgrades for HL-LHC

*Wednesday, 10 July 2019 16:00 (20 minutes)*

A major upgrade to the High Luminosity Large Hardon Collider (HL-LHC)will increase the instantaneous luminosity by a factor 5 compared to the LHC.A complete redesign of the electronic system is required for new radiation lev-els, data bandwidth as well as the clock distribution. A large amount of dataacquired from the detector requires high-throughput electronics for accuratedata processing. The upgrade of this technology involves the integration of Pre-Processor (PPr) and the Trigger Data Acquisition (TDAQ) system for high-throughput electronics. The PPr module has already been designed that will beintegrated with other modules such as Adavnced Telecommunication Comput-ing Architecture (ATCA) system and AMC (Advanced Mezzanine Card) carrierfor the full operation of the high-throughput electronics. This paper presentsthe real-time control and performance of the PPr-TDAQ integration using soft-ware and firmware mechanisms implemented on the PPr. The communicationwith the PPr is implemented through the ATCA shell manager to monitor thehealth status of the system. The final design will be capable to operate up to8 complete modules and will be composed of an ATCA carrier with four AMCslots which will host the CPMs.

## Apply to be<br> considered for a student <br>   award (Yes / No)?

Yes

## Level for award<br> (Hons, MSc, <br>   PhD, N/A)?

PhD

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