

Commissioning of the ATLAS Level-1 Central Trigger system

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The ATLAS Level-1 Central Trigger (L1CT) consists of the Central Trigger Process (CTP) and the Muon to Central Trigger Processor Interface (MuCTPI). The CTP forms the final Level-1 Accept (L1A) decision based on the information received from the Level-1 Calorimeter Trigger system and from the muon trigger system through the MuCTPI. Additional inputs are provided for the forward detectors, the filled-bunch trigger, and the minimum-bias trigger scintillators.

The CTP also receives timing signals from the LHC machine. It fans out the L1A together with timing and control signals to the Local Trigger Processor (LTP) of the sub-detectors. Via the same connections it receives the Busy signal to throttle the Level-1 generation. Upon generation of L1A the L1CT sends trigger summary information to the DAQ and Region-of-Interest to the Level-2 Trigger system.

In this contribution we will present an overview of the final L1CT trigger system as it is now installed in the ATLAS experiment and we will describe the current commissioning and integration activity at the experimental site. The system is now continuously used during cosmic-ray runs to exercise the full trigger chain and read-out of sub-detectors.

These tests are bridging the experiment towards the commissioning phase with protons in the LHC as it is foreseen for this summer. We will discuss in particular the results achieved in operating the system with cosmic-rays and, possibly, the commissioning results with the first proton events in the LHC.

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