FPGA based data processing in the ALICE HLT in LHC Run 2

- Common Read-Out Receiver Card (C-RORC) is the main data input/output interface of the ALICE High-Level Trigger (HLT)

- Among raw readout, HLT performs cluster finding of TPC data already inside the FPGA
  - Significantly faster than CPU-based cluster finding

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- C-RORC hardware platform is in use in several production systems
- Data replay from on-board storage allows standalone full system tests
- Upgrade of TPC Readout Control Unit (RCU2) required adjustments to HLT cluster finder
- Improved cluster finding performance coming with RCU2 branch merging
- Common HLT firmware supports both RCU versions
- Verification of cluster finder input and output
- Improved error detection & reporting
- Cluster finder improvements being evaluated:
  - Split cluster tagging
  - Noise reduction for peak finding