

Overview of the ALICE trigger system

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ALICE (A Large Ion Collider Experiment) is one of the four main LHC experiments and is optimised to study heavy ion collisions.

The ALICE detectors and readout system have undergone a major upgrade to increase the data acquisition rates to the required level.

The integrated luminosity is expected to be increased by a factor of 100 by increasing the readout rate to 50 kHz for Pb-Pb and to 1 MHz for pp collisions.

A novel trigger and timing distribution system is implemented based on Passive Optical Network and GigaBit Transceiver technology.

To assure backward compatibility, a triggered mode based on RD12 TTC technology is kept and re-implemented under the new Central Trigger System. A new universal ALICE Trigger Board based on the Xilinx Kintex Ultra-scale FPGA has been designed that can function as a Central Trigger Processor (CTP), Local Trigger Unit (LTU), and monitoring interface.

Presenter: LIETAVA, Roman (University of Birmingham)

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