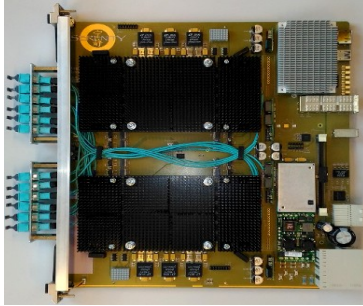# The DAQPATH readout system of the Serenity boards for the CMS Phase-II Upgrade

- Serenity boards are ATCA custom boards used in the readout of the CMS detectors in the High Luminosity LHC upgrade. Each board can handle up to 144 optical input links (up to 25Gb/s each) and supports up to two high-performance FPGAs.

- Detector-facing Serenity board is required to aggregate raw events (FE data) received from the detector on every L1 accept and route this event fragment to the central DAQ system.

- The DAQPATH firmware goal is to collect and merge DAQ data packets and to manage their transmission to the DAQ system over output optical 25Gb/s links.

- The DAQPATH system has a modular and parametric structure: each DAQPATH module feeds one output link with data from a programmable number of input channels.

- First version (v.1.0) validated with hardware tests on Serenity boards at CERN. This version will be available soon as a tool-kit for users in the EMP official repository.

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