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Global Trigger for the ATLAS Phase-II upgrade

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The ATLAS detector at CERN's LHC will undergo a major upgrade prior to the startup of High-Luminosity LHC which affects all major subsystems including trigger and data acquisition. The new Level-0 hardware trigger will be comprised of legacy as well as new systems, among them the Global Trigger which processes full-granularity calorimeter information at 40 MHz and allows for the execution of complex algorithms and topological selection in firmware by concentrating full event data onto a single FPGA processing node. In order to do so the Global Trigger will make use of a Global Common Module that hosts the most sophisticated available FPGAs and optical modules. The first prototype of this module has been designed and constructed recently.

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