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CERN High luminosity LHC LLRF project

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In the framework of the High Luminosity LHC project (HL-LHC), crab cavities (CC) will be installed on both sides of the LHC interaction point (IP) 1 (ATLAS experiment) and point 5 (CMS experiment) to restore an effective head-on collision and minimize the geometric luminosity loss which arises from the crossing angle. Two crab cavities will be installed on each side of the IPs for each beam for a total of sixteen cavities.

The stringent requirements of the low level RF (LLRF) for crab cavities will be briefly described. The architecture of the LLRF system will be presented, it will be based on the MicroTCA platform and the use of a digital deterministic link for RF synchronization (the so-called White Rabbit). The project foresees the development of a new eRTM module and will benefit from the SPS LLRF upgrade put in operation in 2021.

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