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CMS RPC Link System upgrade

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The LHC will be upgraded in several phases that will allow significant expansion of its physics program. The luminosity of the accelerator is expected to exceed 5×1034cm−2s−1. In order to sustain the harsher conditions and to help maintain good trigger efficiency and performance the Resistive Plate Chambers (RPC) system of the CMS experiment, its Link System will be upgraded. The present RPC Link System has been servicing as one of the CMS subsystems since installation in 2008. The use of new generation of electronics components, specially new FPGAs, will improve the timing resolutions of the RPC system to 1.5 ns. Also, the communication rate with the readout electronics will be increased to 10.24 Gbps. Those will allow the RPC to cope with requirements to operate in the HL-LHC conditions. A more robust control interface will be implemented, as well as a new online software. Possible performance improvements of the CMS L1 muon trigger system will also be presented.

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