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## Adaptative readout for CMOS trackers at LHCb

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With the High Luminosity LHC (HL-LHC) upgrade scheduled for 2030, a major upgrade of the LHCb experiment is planned to adapt to the expected harsh environment. At the Upstream (UP) and MightyTracker (MT) tracking stations, Monolithic Active Pixel Sensors (MAPS) have been chosen for their high resistivity to radiation and their small pixel sizes. This high granularity and the higher pile-up at HL-LHC will considerably increase the data rate generated by these detectors. To fulfill LHCb's design requirements, a data reduction method must be implemented directly at the sensor level. In this work, we propose an improved readout architecture and lossless data format for UP's hottest sensors. Our simulation of this method show that it provides an efficient readout for MAPS at the high particle rates possible in the HL-LHC.

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