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New prototypes for components of a control system for the new ATLAS pixel detector at the HL-LHC

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In the years around 2020 an upgrade of the LHC to the HL-LHC is scheduled, which will increase the accelerators luminosity by a factor of 10. In the context of this upgrade, the inner detector of the ATLAS experiment will be replaced entirely including the pixel detector. This new pixel detector requires a specific control system which complies with the strict requirements in terms of radiation hardness, material budget and space for the electronics in the ATLAS experiment. The University of Wuppertal is developing a concept for a DCS (Detector Control System) network consisting of two kinds of ASICs. The first ASIC is the DCS Chip which is located on the pixel detector, very close to the interaction point. The second ASIC is the DCS Controller which is controlling 4x4 DCS Chips from the outer regions of ATLAS via differential data lines. Both ASICs are manufactured in 130nm deep submicron technology. We present results from measurements from new prototypes of components for the DCS network.

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