

## The HCCStar ASIC for the ATLAS ITk silicon strip detector: design and verification

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The Hybrid Controller Chip (HCC) is an application specific integrated circuit that's part of the front-end electronics for the new ATLAS Inner Tracker Strip detector, which will be installed as part of the High Luminosity LHC upgrade program. A prototype of the HCC was produced and tested in 2018 and 2019, and the production version is currently being prepared. The HCC must read out clustered hit data from the strip tracker at a high rate while simultaneously surviving exposure to large amounts of ionizing radiation. This radiation can interfere with the normal operations of the circuit by causing logic and memory errors known as single event effects, which can cause bits to invert and data to become corrupted. This talk will discuss work to verify the correctness of the digital logic of the production HCC, with a particular focus on simulation of these single event effects to assess how well the design is protected against radiation before submitting the chip.

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No

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