

Prototyping Serial Powering with RD53A

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The high luminosity upgrade for the Large Hadron Collider at CERN requires a complete overhaul of the current inner detectors of ATLAS and CMS. These new detectors will consist of all-silicon tracking detectors. A serial powering scheme has been chosen in order to cope with the various constraints of the new detectors. In order to verify this new powering scheme, efforts are ongoing to set up a first larger prototype for serial powering using modules based on the RD53A chip, a half-size prototype in 65nm CMOS technology for the new pixel front-end chip, developed by the RD53 collaboration. In particular, a serial powering stave consisting of up to 8 RD53A quad chip modules has been set up in Bonn. First results from the ongoing activities, with an emphasis on the electrical characterization of an RD53A serial powering chain, using representative services and power supplies, are presented.

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