

Design and Performance Optimisation of the Hexaboards for CMS HGCALE On-Cassette Readout Electronics

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We present the design and performance of the Hexaboard, a complex hexagonal multi-layer PCB equipped with multiple HGCROC ASICs to read out the signals from silicon pads with low noise and large dynamic range. The Hexaboards are glued to silicon sensors and connect to them via wire bonds through holes in the PCBs. The Hexaboard also connects to mezzanine boards for powering, data concentration and data transfer. More than 10 variants of the Hexaboard are required to cover the circular fiducial area of the CMS endcaps. Detailed performance measurements, and comparative PCB simulations using ANSYS SIWAVE, will be presented

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