

# Testing of the High Density Interconnect Circuits for the CMS Forward Pixel Detector Upgrade

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The CMS pixel detector is the innermost component of the all-silicon tracking system, which is the closest detector to the interaction point. The foreseen increase of the instantaneous and integrated luminosities at the LHC, during Run 2, necessitate an upgrade of the pixel detector in order to maintain the excellent tracking performance of the CMS detector. The notable new features of the upgraded pixel detector are: ultra-light mechanical design with four barrel layers and three end-caps on either side of the interaction region, a digital readout chip with higher rate capability and a new cooling system. The forward pixel detector will have 672 detector modules with 44 million pixels of size

100 x 150 micrometers. The modules consist of silicon sensors bump-bonded to readout chips. The high-density-interconnect (HDI) circuits are glued on top of these sensors and are wire-bonded to a 2x8 array of readout chips. The HDIs provide signal and power distributions for the readout circuitry. The CMS group from SUNY at Buffalo is responsible for the detailed testing and assembly of the HDIs at Fermilab's SciDet Facility. The poster will present our contribution to the visual and electrical inspection of the HDI circuit boards as well as some assembly of the FPIX detector modules.

## Is this an abstract for a New Perspectives presentation?

Yes

## Is this an abstract for a Users Meeting Poster?

Yes, both are covering the same content.

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