



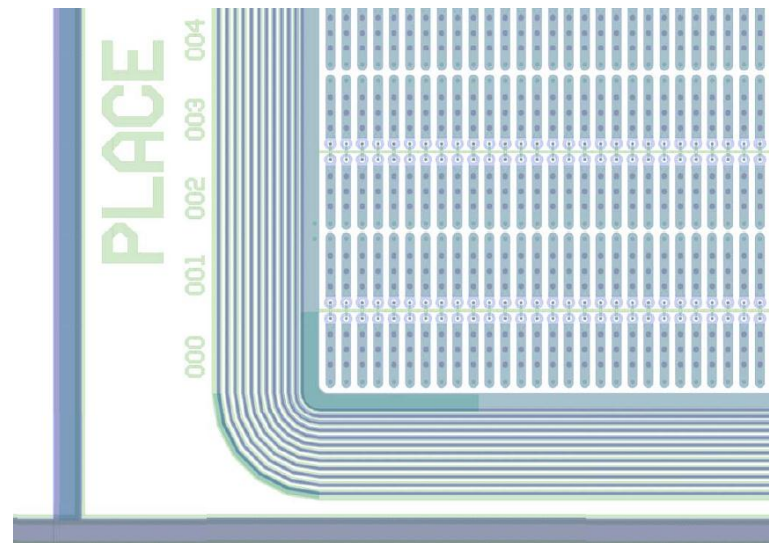
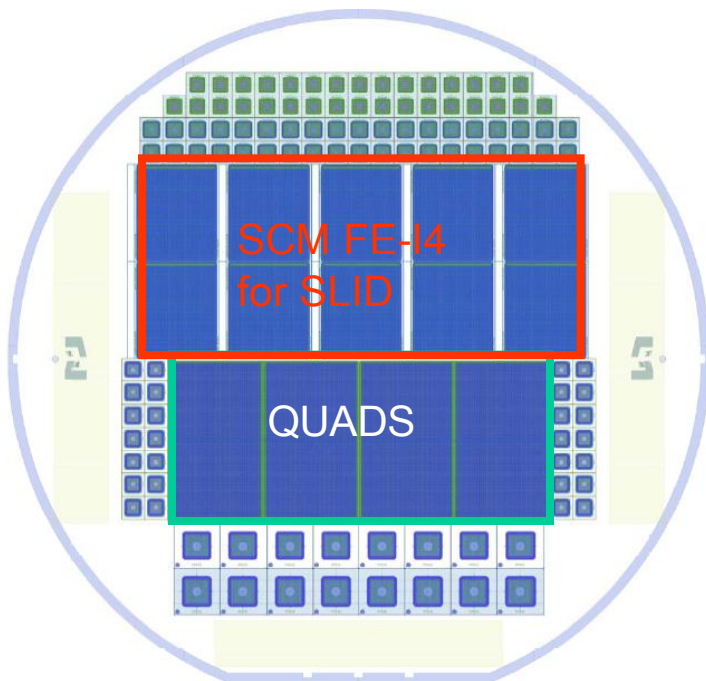
Proposal for a new production of n-in-p diodes and pixels at CiS as common RD50 project

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Production of n-in-p structures at CiS – 6”

- CiS will upgrade in 2012 its production line from 4” to 6” wafers, with the possibility to start a test production on 6” wafers in second half of 2012.
- Plan for a first production of 25 wafers on high resistivity FZ p-type material
- FE-I4 compatible sensors to be interconnected with bump-bonding at IZM and with SLID at EMFT.
- Test inactive edges down to 250 μm (now 450 μm) and pixel pitch of 25 μm x 250 μm (foreseen for the inner layers of upgraded ATLAS pixel detectors).



Production of n-in-p structures at CiS – 6”

n-in-p diodes with multi-guard rings (active side 2.5 mm or 5.0 mm)

- Characterization of trap parameters of main radiation induced defects with spectroscopic methods as DLTS, TSC, HRPITS (High Resolution Photo Induced Spectroscopy), EPR (Electron Paramagnetic resonance), FTIR (Fourier Transform InfraRed), PL (PhotoLuminescence).
- Understanding of their charge state under operation as well as on electric field profile with TCT (Transient Current Technique), Edge TCT, Photoconductivity decay.
- Cross-correlation of results got with different techniques and cross-links with simulation to get a detailed knowledge on radiation hardness of n-on-p devices and understanding of charge multiplication effects.

