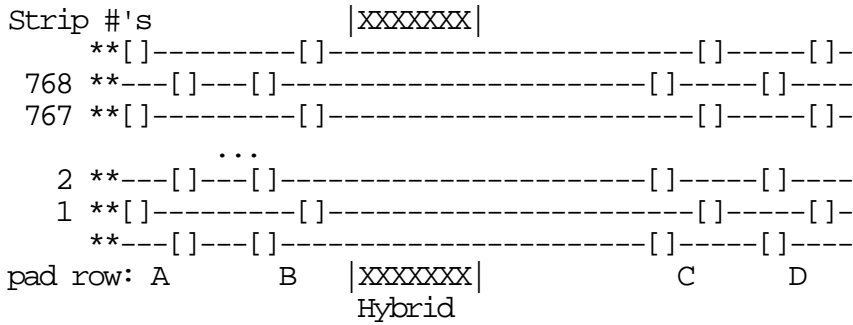


ATLAS SCT Barrel Silicon Strip Detector Pad Layout (ATLAS97)

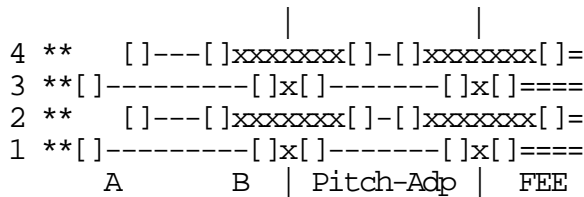
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Bonding pad arrangement:



(Note: [] : bond pad, ---- : strip, ** : Polysilicon resistor)

Relation to the pads on the pitch-adaptor and the FEE chip:



The pad staggering on the pitch-adaptor is made so that the relation of the pads between the detector and the FEE is the same with or without the pitch-adaptor.

In laying out the detector bond pads, there are several aspects which have been paid attention,

- 1) Rotation(180 deg.) of the detectors:- This is to give optimum freedom to use the detector, e.g., placing the hybrids in either detector in a module
- 2) Staggering of the bonding pads in a row:- This is required for the implementation of the bond pads of a width of 50 μm in the 80 μm pitch strips in the n-on-n detector. The staggering also eases the wire-bonding.
- 3) Even number of strips:- The number of readout channels is even.
- 4) The detector is to be centre-tapped, but leaves freedom for end-tapping (e.g., for testing).

The first aspect was originally requested to allow the rotation of detectors relative to each other in a module (e.g., to match/mis-match the bad strips). However, combined with the second aspect, it is not possible to rotate the detector with respect to the other. Although there still remains the possibility to rotate the detectors in pair, it would be desirable to keep the orientation of the detector uniquely in order to avoid confusion in the module construction. The orientation in the above is such that the strip #1 is always in the left-hand side when facing the detector with the strips run vertically.

With the fourth aspect, the staggering of the bonding pads for the centre-tapping (Row B in Fig.) will be the same as the staggering of the bonding pads at one end (Row D where the end-tapping would be). Allowing the 180 deg. rotation (with the detectors in pair) will require one more row of the bonding pads (Row C) which is also in the same staggering orientation as the rows B and D.