Size and position of SIB/SCB/FPC for IB: open questions

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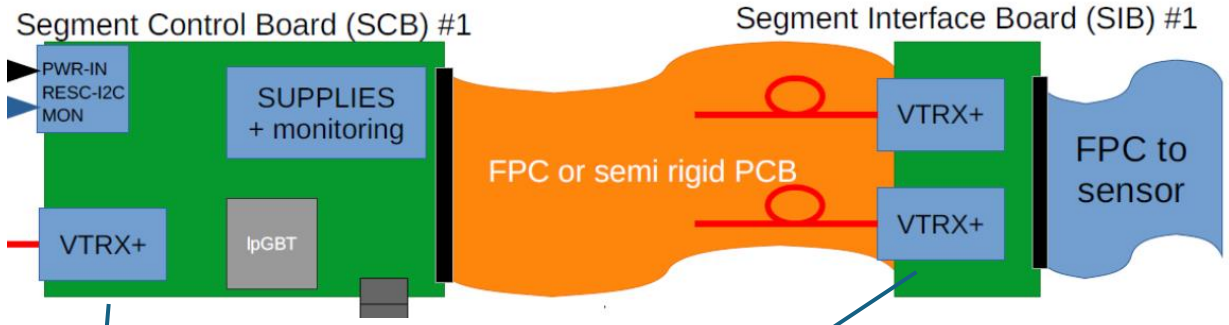
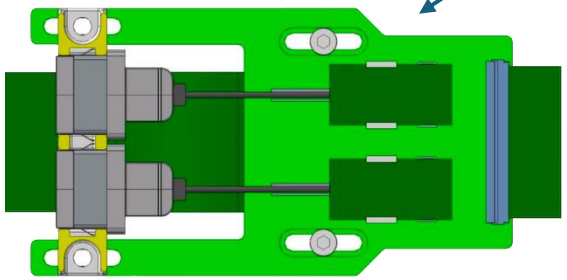
Status of the IB support design

- IB L0-L1 support has a rather stable design
  - after a few updates, the last version has been sent to Ben
  - soon will be ‘’material-budget checked’’
- IB L2: preliminary layout
  - next step: define details of the support arms/cone thinking of the assembly procedure and of the integration with L0+L1
  - now the two supports are separated
- We are facing the definition of details which are dependent on services (cooling, powering, RO)

Bits and pieces h-side (A-side in ITS3 slang)

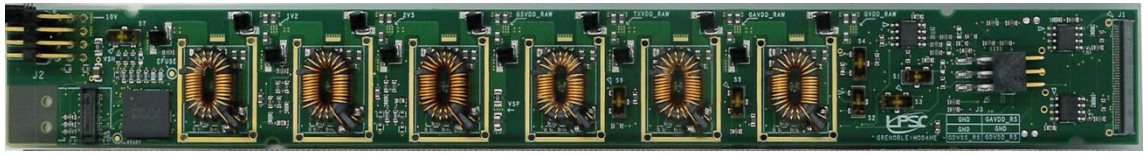


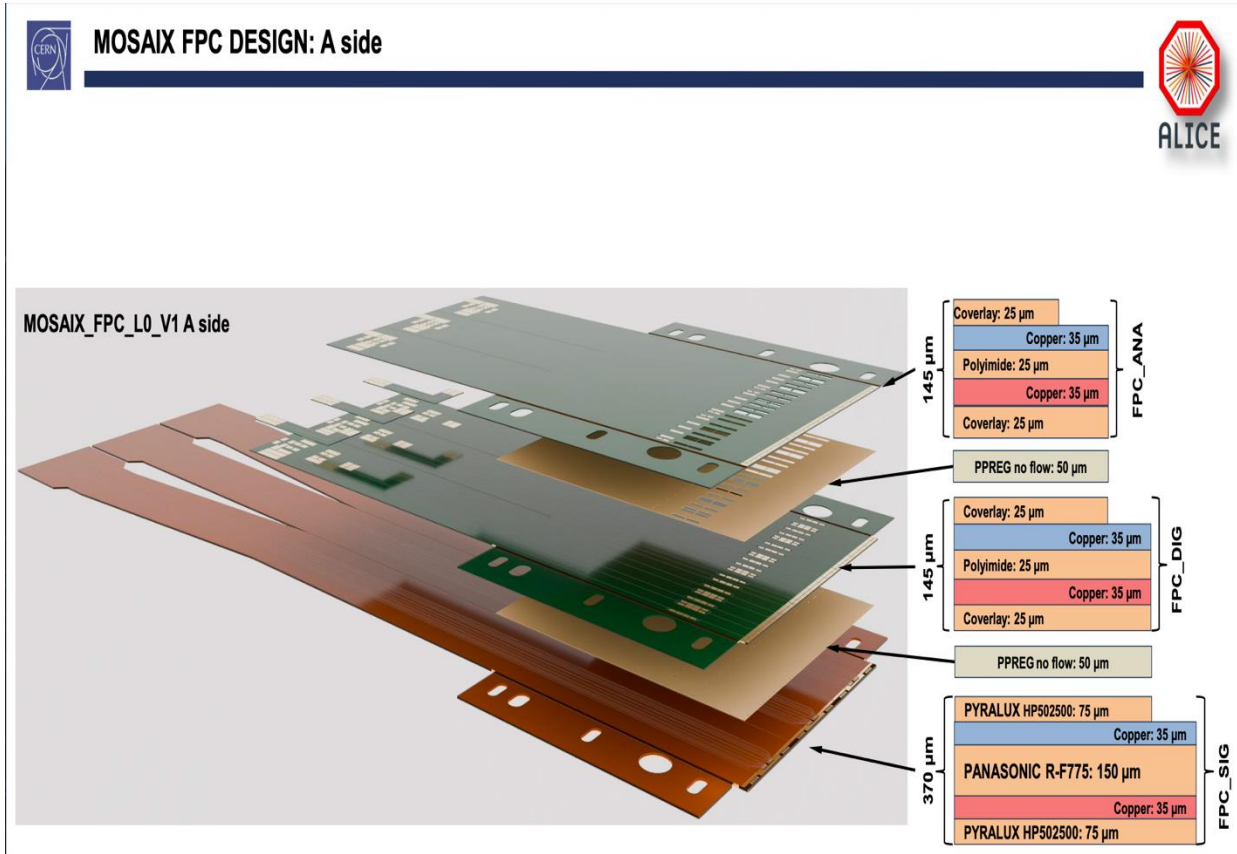
SIB 79x45 mm



1 SIB+1 SCB
per segment

SCB 220x28 mm





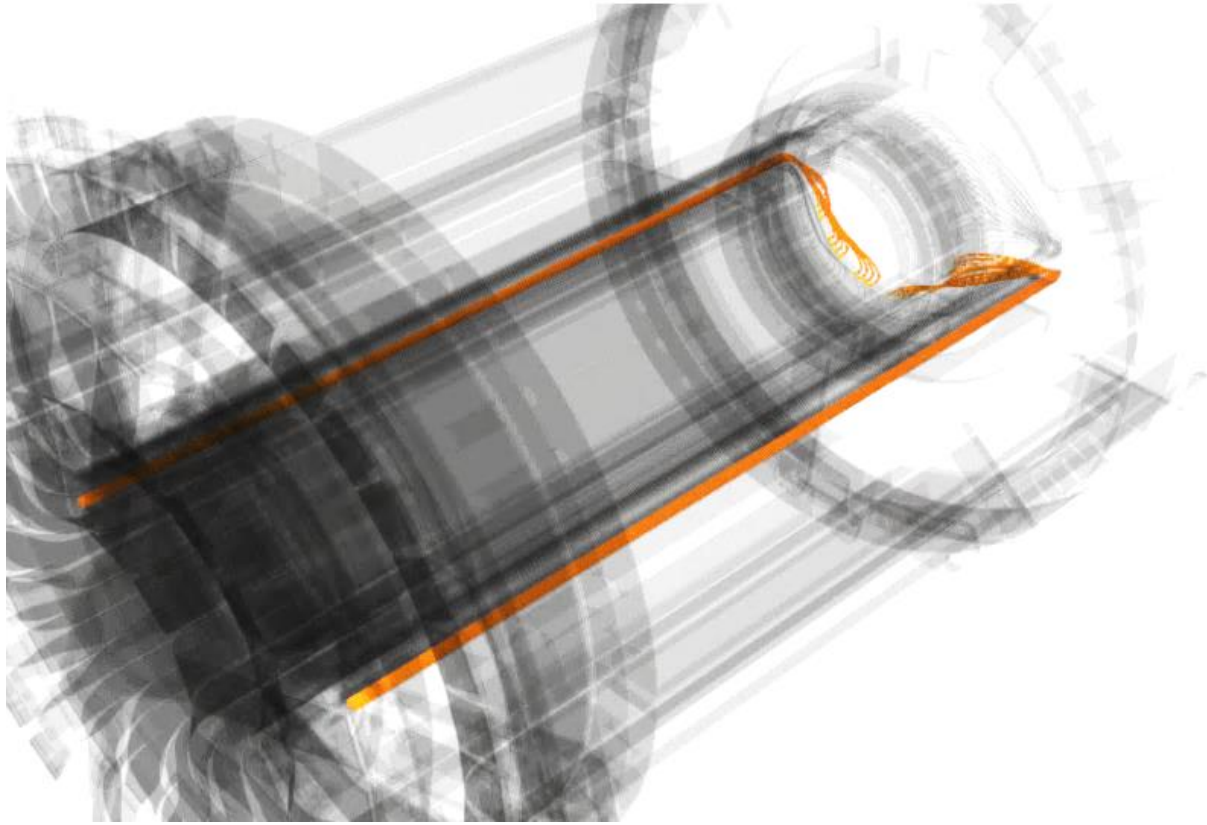
three-layers FPCs

Cables e-side (C-side in ITS3 slang)

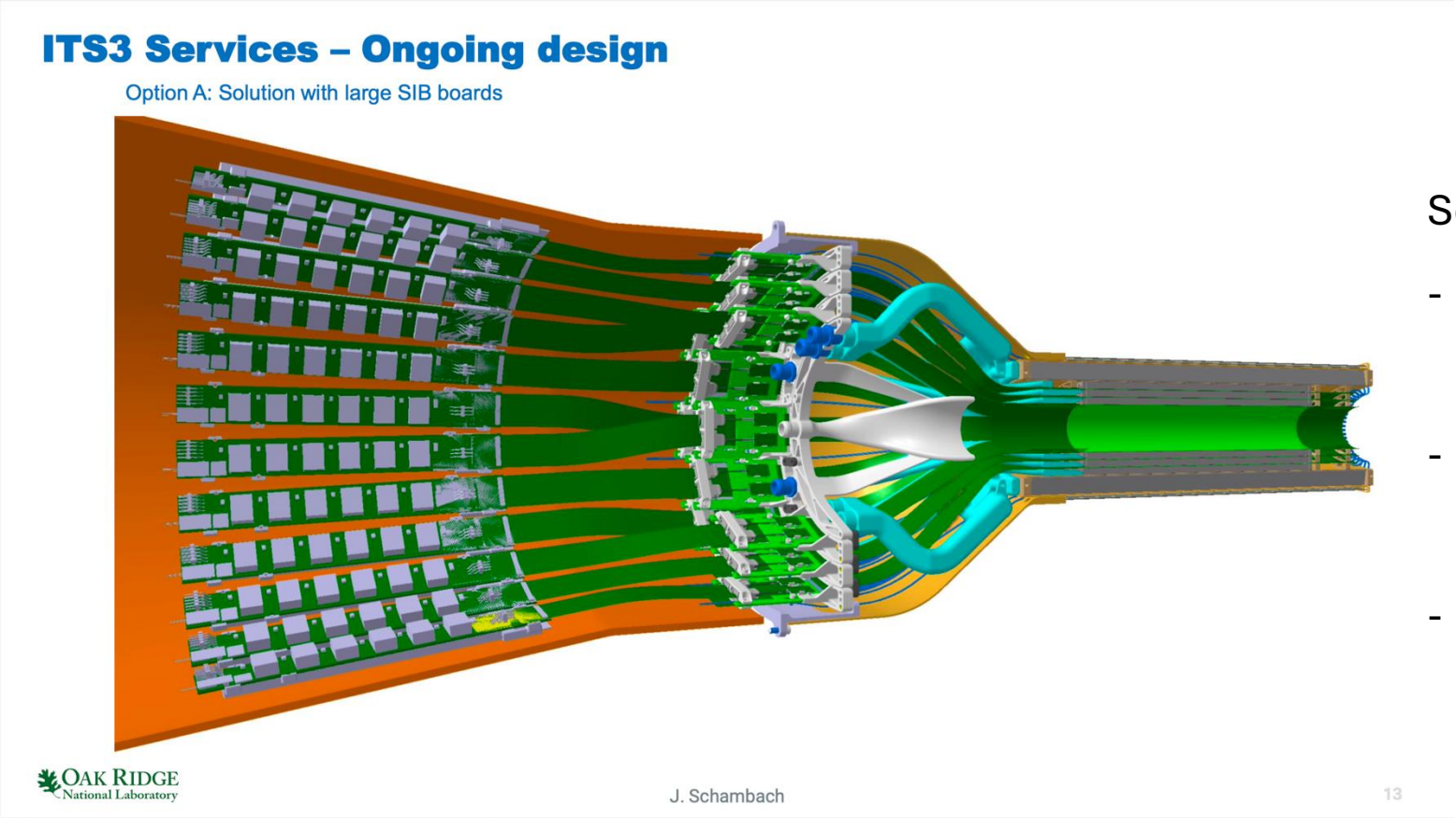
Length: <= 500 mm (of what you see)
1 mm copper, plastic sheath

Cables are laid from e-side to h-side
Still a route to boards is to be defined

- will they have dedicated SCBs?



Positioning of boards/FPCs - ITS3



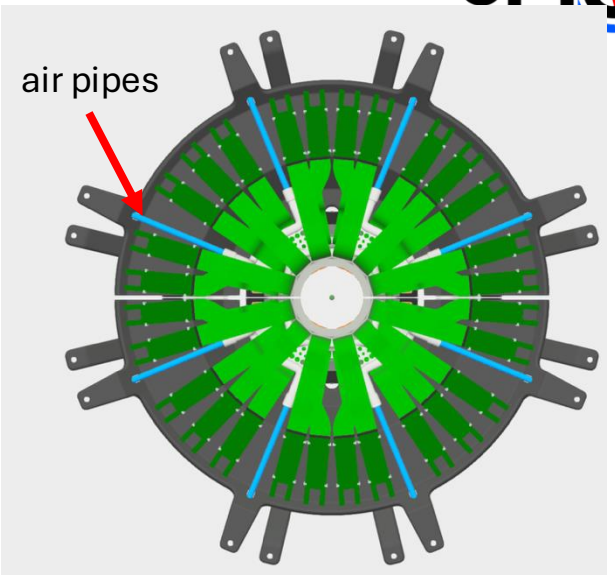
Scattered thoughts:

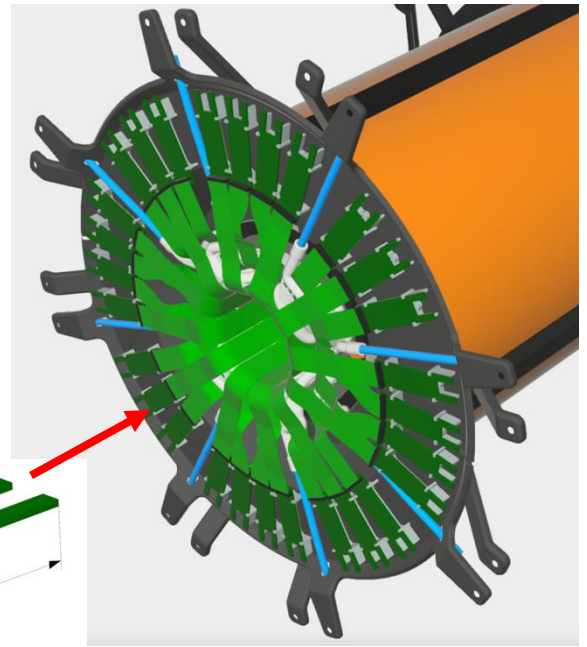
- boards and cables are compacted on a ‘’cone’’ shape on one side of the detector
- FPCs run with basically no sharp bends and no swing; S/D+A ends are pretty close ~ 20 cm
- design and available space allows stiffeners/protections/supports for critical components to be easily placed
- should we (if conceivable) have a different SCB design?

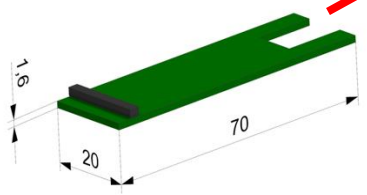
Positioning of SIBs

Space constraints ''stimulate creativity'':

- The layout with extension of the cone to support the SIB still holds if…
  - OPTION 1: the full width SIBs fit (~ 50 mm)
  - OPTION 2: double-sided SIBs? (like could be in the figure
  - OPTION 3: stacked vtrx+
  - OPTION X:?
- Knowledge of connectors size, protections/stiffeners needed to give it a serious try
- Note that to fit air pipes and L0+L1 FPCs a few of them have a ''swing''
- The ''common area'' of FPCs looks like it can be shorter, could help to gain few mm in the envelope to fit thicker boards
- Analog/digital power supply layers of FPCs should contniue after the SIB to join the SCBs: can be wires instead of FPCs? This would greatly ease the routing







can think this double-sided?
(=one vtrx+ per side)

Positioning of SCBs

Red segments sized ~ the length of SCBs

- possible positions:
  - on the barrel supporting arms
  - along the PST, in the disk region, but do disks cables agree?

SCB, 220x28 mm