

Very Low Mass BPIX modules

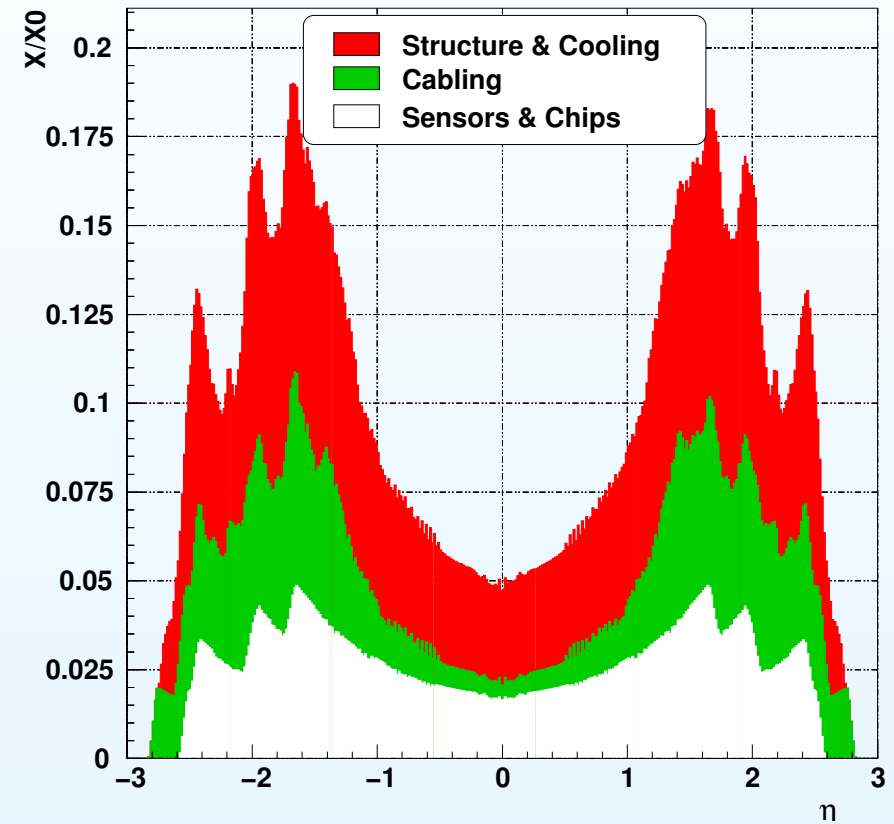
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Current Pixel Barrel

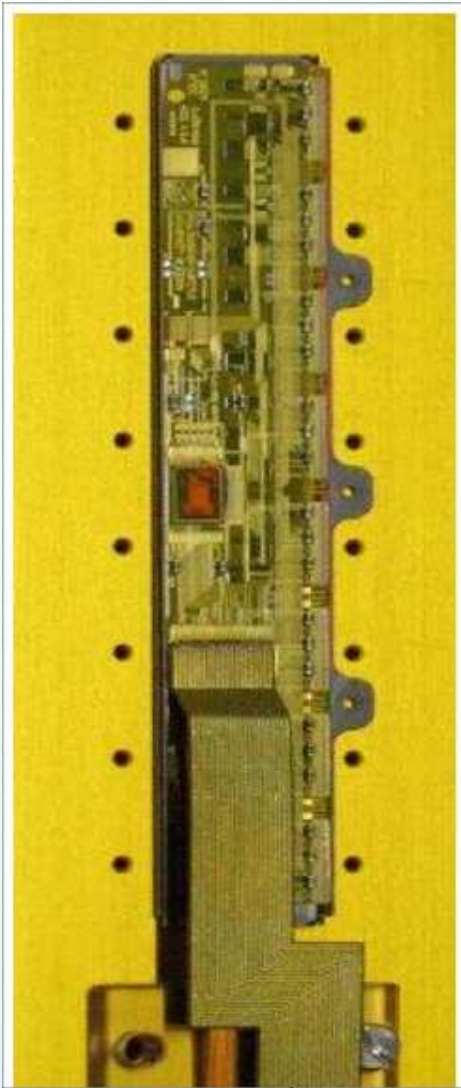
material budget mean values ($\eta = 0$):

- MB rising steeply with eta
- active material $\sim 1/3$ only!
- cooling & structure $\sim 1/2$!
- all the rest mostly cables $\sim 1/6$

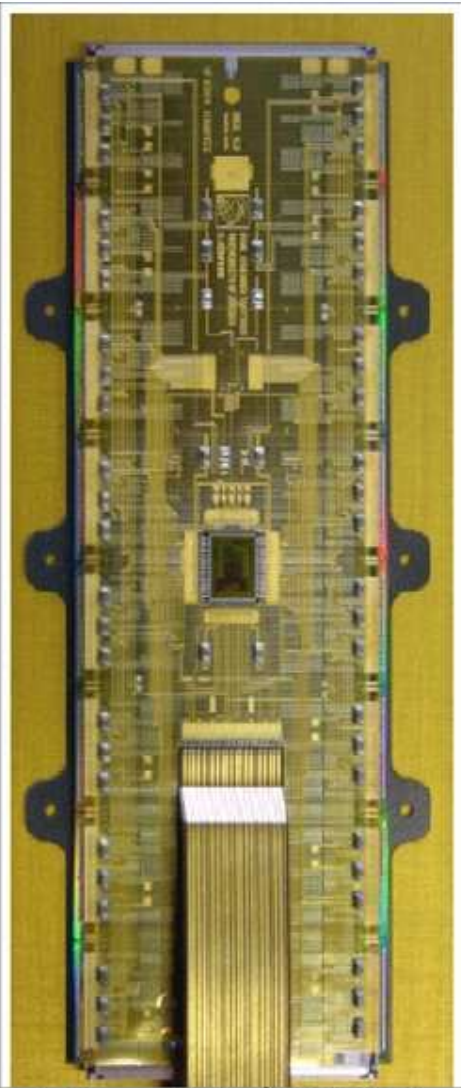
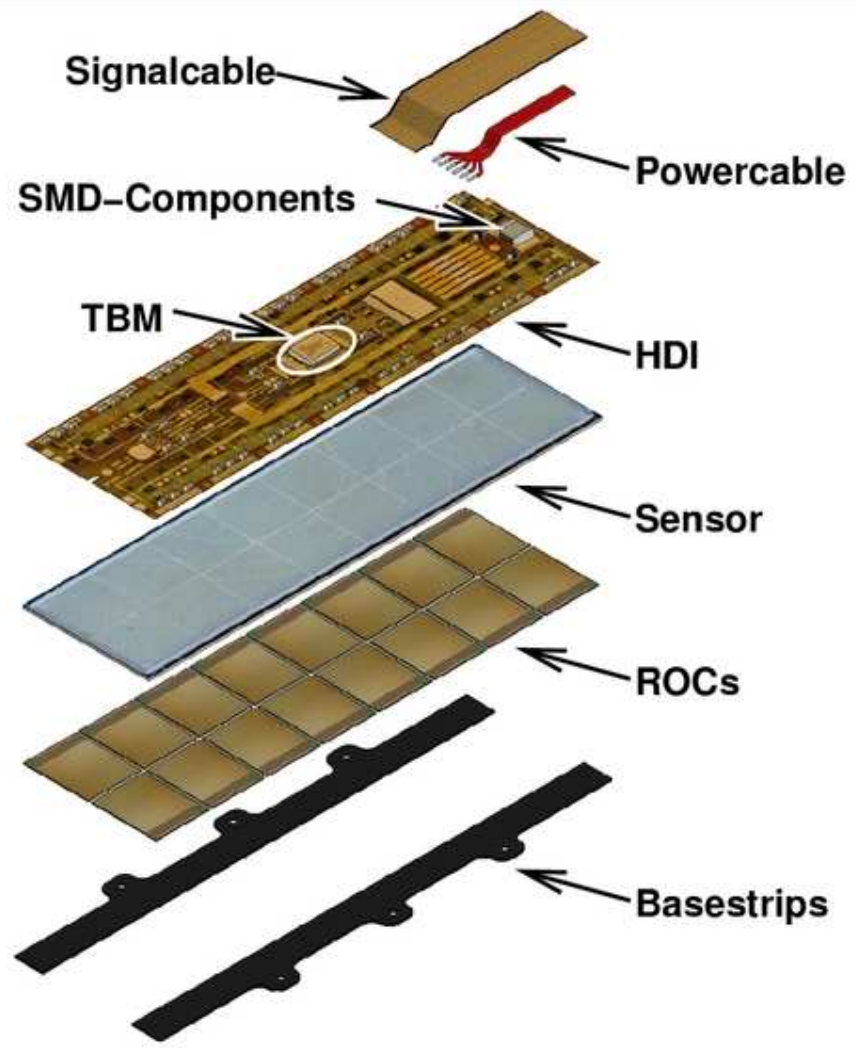


spikes due to connectors/cooling manifolds...

Barrel Modules



half-module $\hat{=}$ 8 ROCs



full-module $\hat{=}$ 16 ROCs

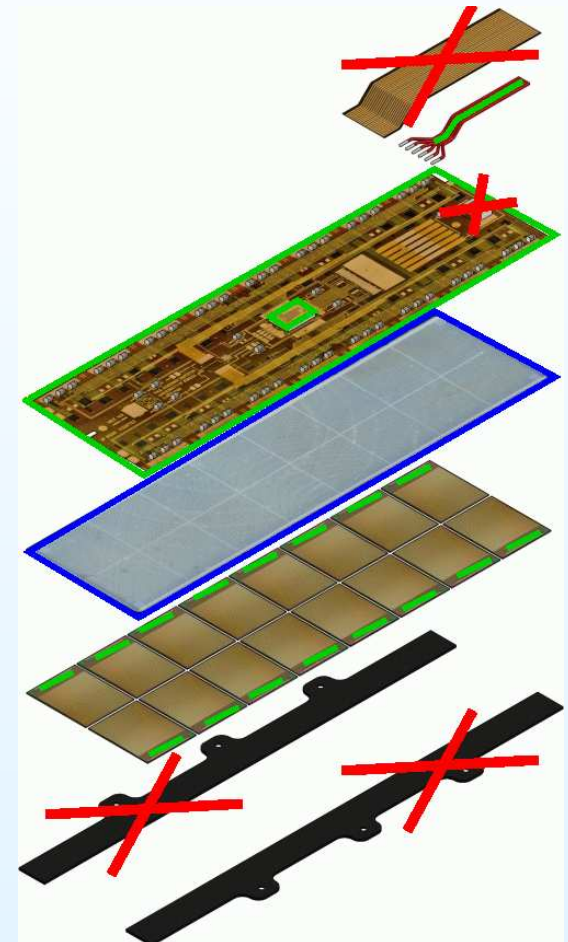
Pixel Barrel Plans for 'Phase-1'

mechanical upgrade (see Rolands talk):

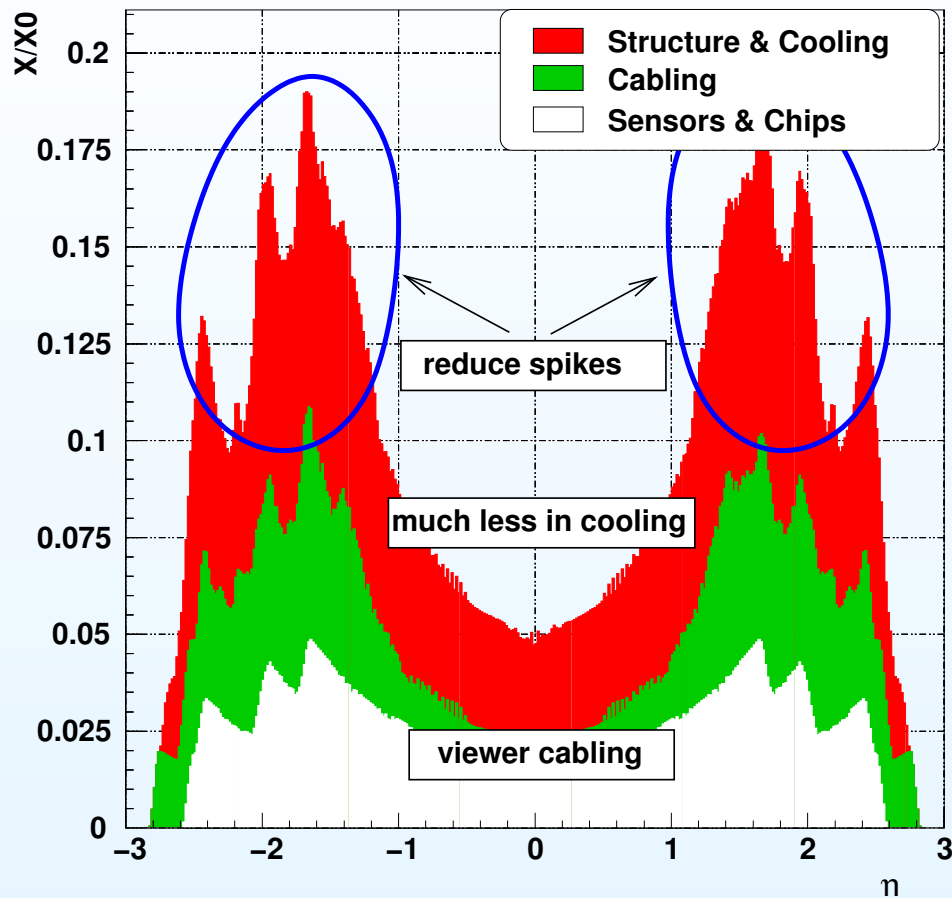
- replace fluorocarbon cooling with CO₂
→ smaller diameter pipes
- combine with lightweight structure

trimm fat @ modules:

- fewer/thinner but longer cables
→ less connectors
→ move connectors/portcards out of active
- no HV-capacitor (0.2)
- no basestrips (0.44)
- thinner ROC's $175\mu \Rightarrow 75\mu$ (0.36)
- no half modules (saves 6% services)



Pixel Barrel Plans for 'Phase-1' - Outcome



reduction potential:

- structure, cooling & cabling ~ 50%
- extra reduction in spikes:
 - connectors/portcards moved out of active
 - no cooling manifolds
- overall ~33%

phase I SCMS pixel tracker could have three layers for the material of two...