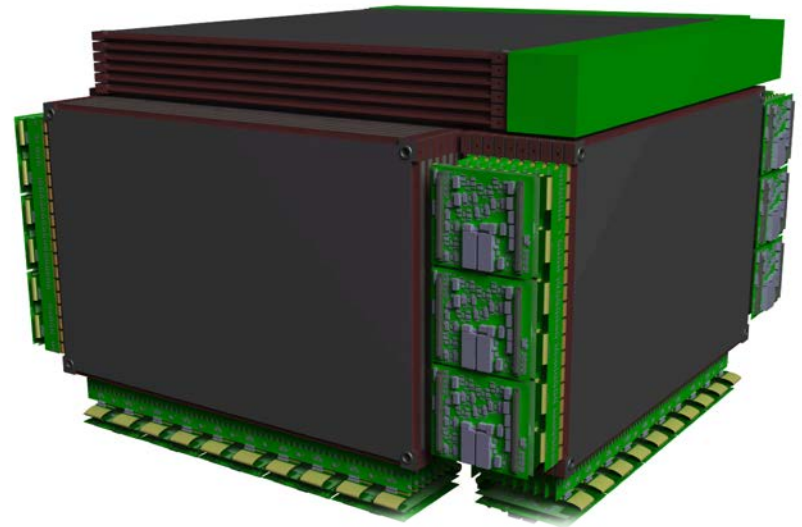


FIT mass estimation

Weight meeting

5th March 2021

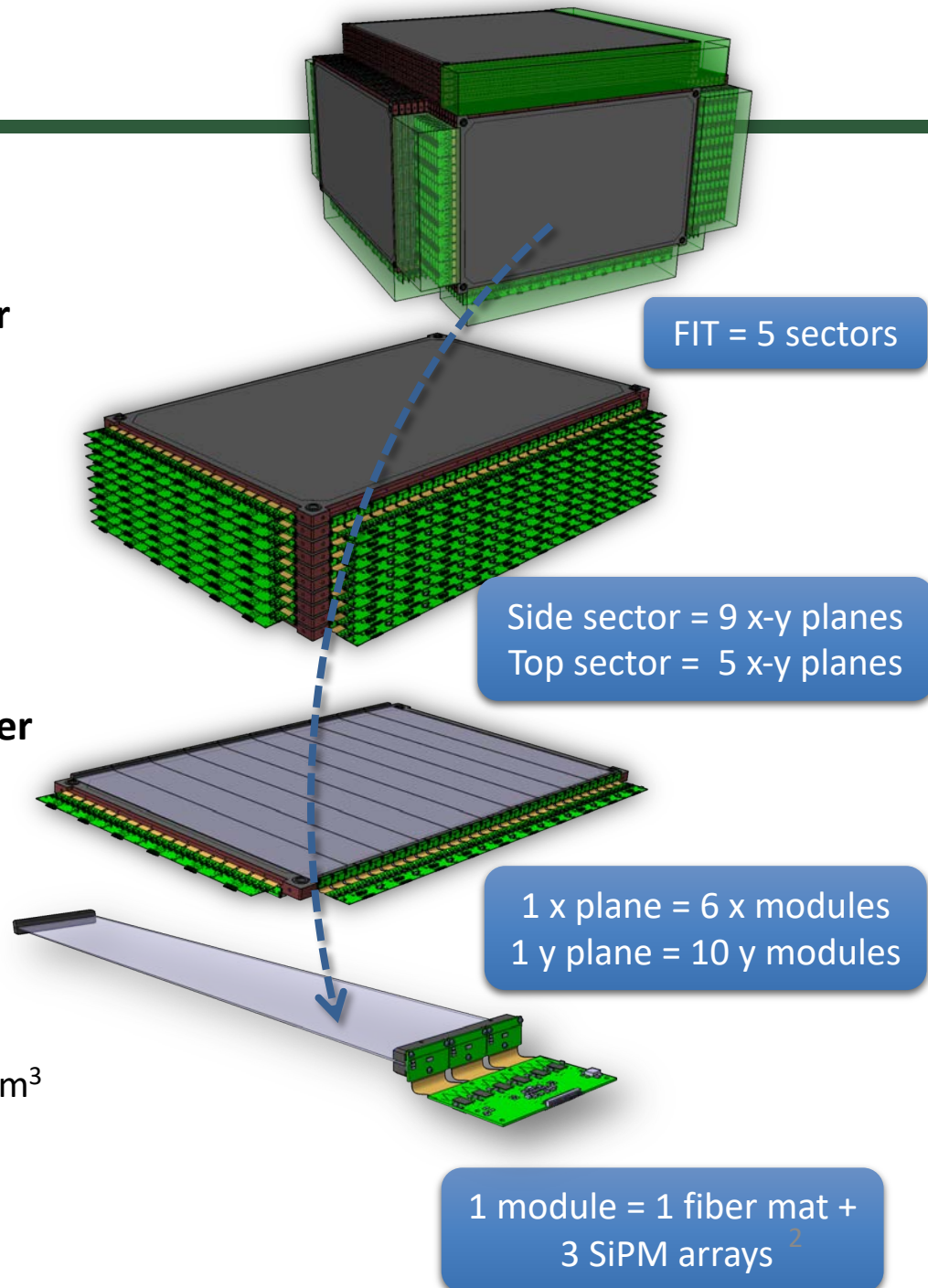


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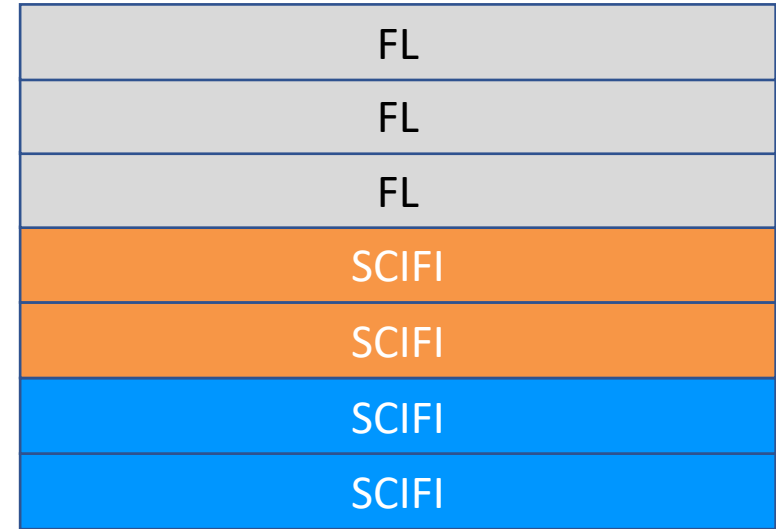
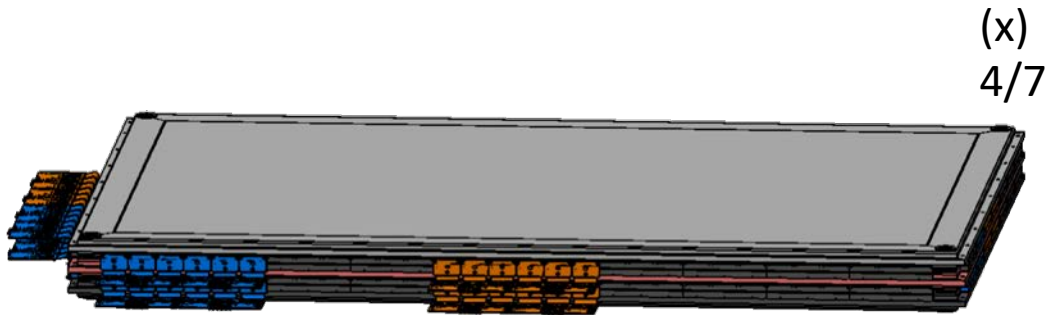
FIT: Fiber Tracker

- 4 identical **side sectors** + 1 **top sector**
 - 9 x-y **planes** in each side sector
 - 5 x-y **planes** in the top sector
- 6 **x modules** (106 cm fiber length) in each x plane
- 10 **y modules** (67 cm fiber length) in each y plane
- 1 **fiber mat** + 3 **silicon photomultiplier (SiPM) arrays**

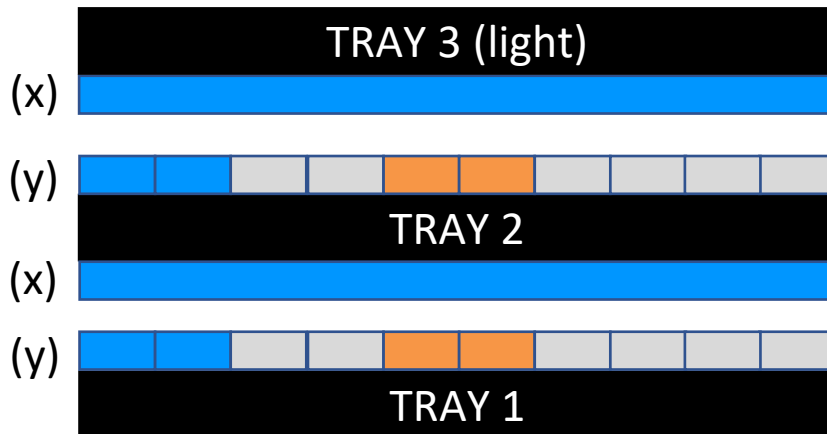


Overall dimensions: $\sim 1475 \times 1475 \times 1000 \text{ mm}^3$

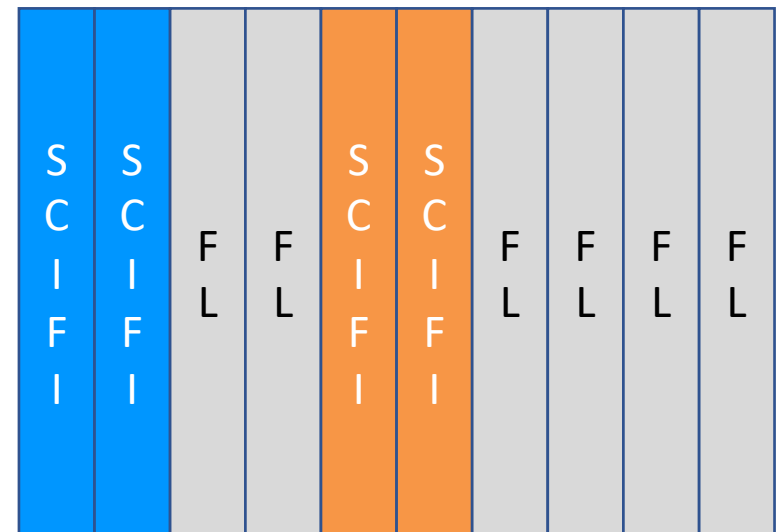
Closest goal: "Proto FIT"



SCIFI = scintillating fiber
FL = fishing line



(y)
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- **3 support trays**
- **8 short SCIFI mats + 8 long SCIFI mats**
- **12 short FL mats + 6 long FL mats**

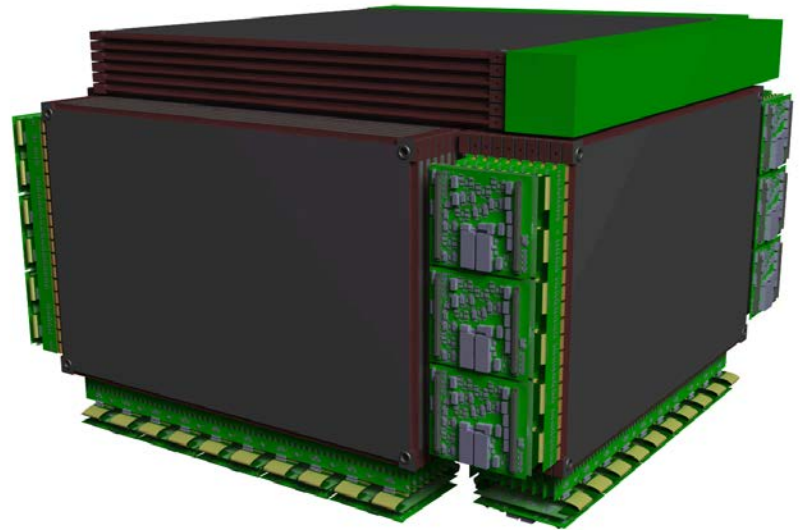
FIT mass estimate with 7 long modules on y planes

Item	Mass (kg)
x mat	0.21
x module = x mat + FEB (30 g)	0.24
x plane = 7 x modules	1.68
y mat (77 cm)	0.15
y module = y mat + FEB (30 g)	0.18
y plane = 10 y modules	1.8
Side sector = 9 (x planes + y planes) + 10 TRAYS (3.5 kg)	66.32
Top sector = 5 (x planes + y planes) + 6 TRAYS (3.5 kg)	38.4
FIT = 4 side sectors + 1 top sector	303.68

FIT mass estimate with 6 long modules on y planes

Item	Mass (kg)
x mat	0.21
x module = x mats + FEB (30 g)	0.24
x plane = 7 x modules 6 x modules	1.68 → 1.44
y mat (77 cm 67 cm)	0.15 → 0.13
y module = y mats + FEB (30 g)	0.18 → 0.16
y plane = 10 y modules	1.8 → 1.6
Side sector = 9 (x planes + y planes) + 10 TRAYS (3.5 kg)	66.32 → 57.36
Top sector = 5 (x planes + y planes) + 6 TRAYS (3.5 kg)	38.4 → 33.2
FIT = 4 side sectors + 1 top sector	303.68 → 262.64

Thank you!!



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