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FTv5 - updated Monolayer design with dead regions and SiPMs

This version is an improved design of FTv4 with new features:

- updated dimensions
- all Modules have the same size (see "StereoIssue" of FTv4)
- SiPM modules
- a large number of parameters are implemented in the xml description to make FTDet more flexible

New Naming Scheme

Naming convention proposal

Full view: [png](#)

Proposal from Herve(electronics) and Antonio(modules) to stick to the OT naming convention.
Personal opinion : it is important to have the same convention offline and online.

electronics, constructed in the figure below, and essentially based on a geographical sub-division of the OT system as:

- 3 stations: T1, T2, T3;
- 4 layers: L0, L1, L2, L3 (L0, L1, L2, L3, L4);
- 4 quarters: Q0, Q1, Q2, Q3.

Address bit	device	possible values
0-1	OTIS 0-3	00-11
2-5	module 1-9	0001-1001
6-7	quarter	00-11
8-9	layer	00-11
10-11	station	01-11

This would be Front-End:

- Station 1 (01)
- Layer 0 (00)
- Quarter 0 (00)
- Module 4 (0100)
- Thus: 01|00|00|0100

Thus we could refer to it by:
FE(T1, L0, Q0, F4)

In this scheme, every module is identified by a label like T1L0Q2M3, where T1=station, L0=first layer in XUVX sequence, Q2=top-right, and M3 means third module of that quarter.

Blake's sketches

#1: Sandwich structure

Full view: [pdf](#) , [png](#)

FT Sandwich structure (2015)

Core (each)
 $\rho = 32 \text{ kg/m}^3$
 $\Delta z = 19.8 \text{ mm}$
 $\Delta y = 4486 \text{ mm}$
 $\Delta x = 528 \text{ mm}$

Endplug (each)
 $\rho = 2700 \text{ kg/m}^3$
 $\Delta y = 122 \text{ mm}$
 $\Delta z = 19.8 \text{ mm}$
 $\Delta x = 528 \text{ mm}$

CF-Skin+Glue (each side)
 $\rho = 1390 \text{ kg/m}^3$
 $\Delta y = 4686 \text{ mm}$
 $\Delta z = 0.200+0.200 \text{ mm}$
 $\Delta x = 528 \text{ mm}$

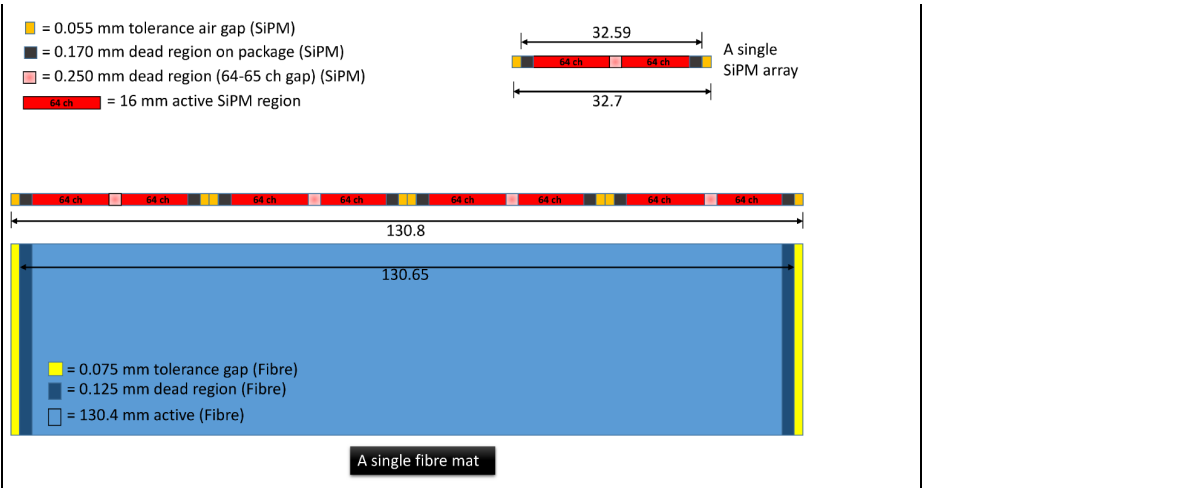
Endpiece (each)
 $\rho = 1200 \text{ kg/m}^3$
 $\Delta y = 30 \text{ mm (top+bot)}$
 $\Delta z = 2.0 \text{ mm}$
 $\Delta x = 523.2 \text{ mm}$

SciFibre
 $\rho = 1180 \text{ kg/m}^3$
 $\Delta y = 4850 \text{ mm}$
 $\Delta z = 1.3 \text{ mm}$
 $\Delta x = 523.2 \text{ mm}$

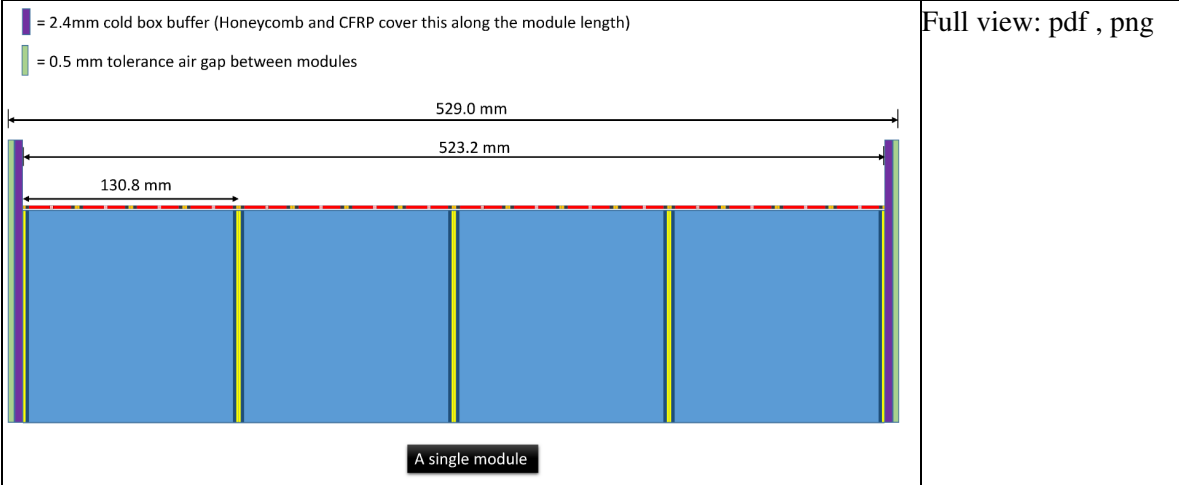
Total thickness in z = 41.7 mm
 Total height in y = 4850 mm
 Total width in x = 528mm + 1mm module air gap spacing

#2: Single Fibremat

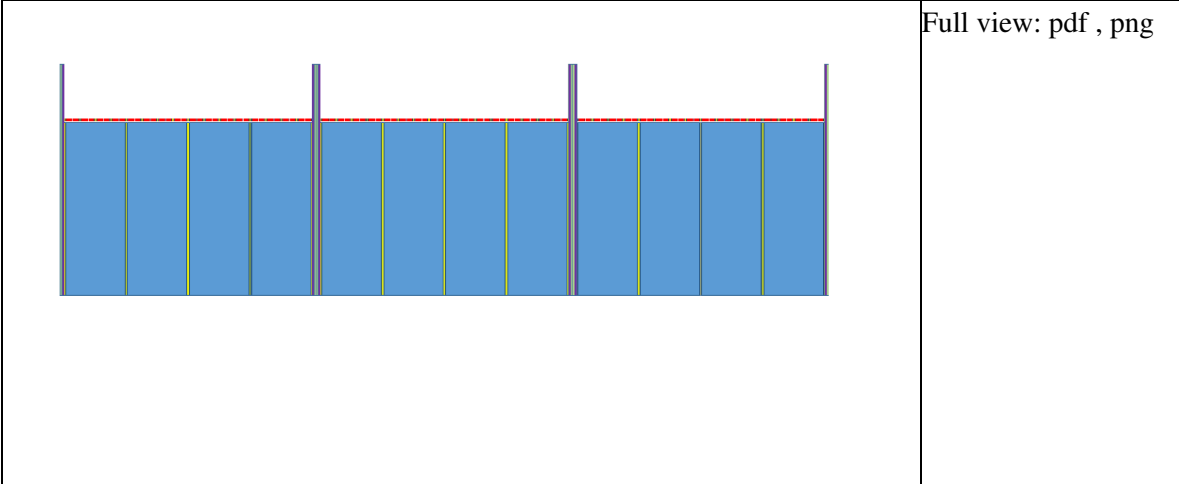
Full view: [pdf](#) , [png](#)



#3: Single Module



#4: Some Modules



-- OliverGruenberg - 2015-04-16

This topic: LHCb > SciFiPicv50

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