



Plans for Bump-bonding

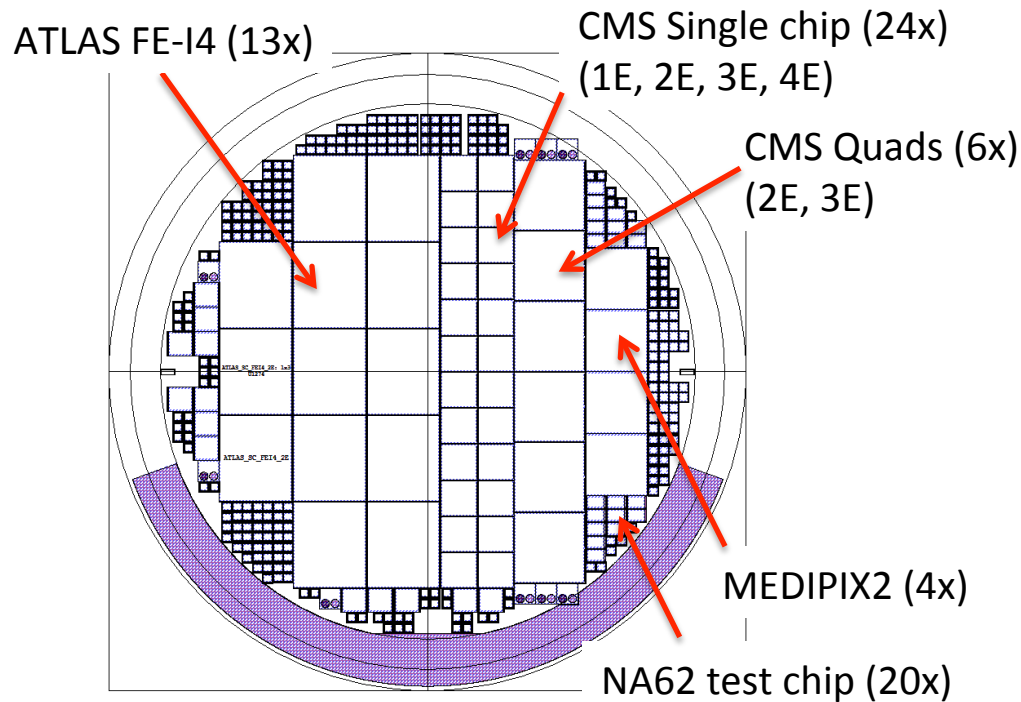
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Indico agenda:

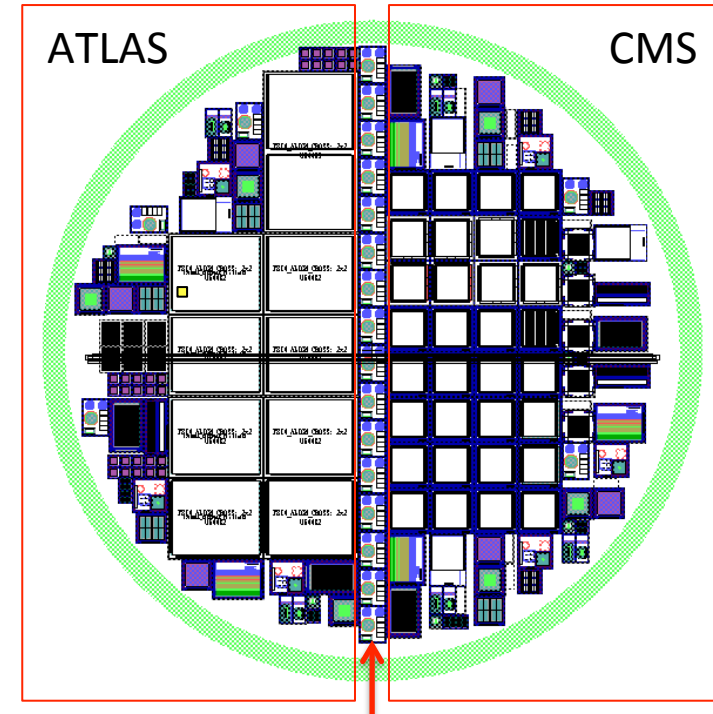
<https://agenda.infn.it/conferenceDisplay.py?confId=8456>

Wafers Sets

3D Double Side Batch



Planar ATLAS/CMS "Batch 2"



Test structures for Si-Si qualification

In program 4 sensor batches:

- 3D double side – October? - Funds (MI) assigned for 2014
- Planar ATLAS/CMS Batch 2 – November – Funds (FI/PI) assigned 2014
- 3D and Active edge batches coming 2015 – no funds yet.
- We probably need 4 different mask sets. Not optimal for bump-bonding. Can we do something on that?

• *Masks for Selex*

- Electronics: FE-I4, PSI46 already there – PSI46dig is the same as PSI46?
- Sensors: no mask existing for new productions
 - In the past made with Toppan Photomask Inc. (Rousset, FR) – 7” mask cost was 820 € + TVA (2009) – we have also contacts with Photronix UK Ltd. (740 €, 5” mask, today)
 - Mask was done in GDS II from sensor layout – check bump-pad opening 18µm diameter and wafer level crosses!
 - Selex wants also DXF format to x-check mask (rather a nightmare to convert!)

• *IZM*

- Electronics: FE-I4, PSI46 already there – PSI46dig is the same as PSI46?
- Sensors: no mask existing for new productions
 - IZM makes mask layout themselves - ~1.5k€ per mask –
 - Request of wafer alignment crosses is different from Selex.

BB Production (ATLAS view)

		275 μ m D/S	Planar - B2	3D – B3	Act. Ed. – B4
Funds		27 k€ (MI/ATL)	27 k€ (CMS)	2015	2015
Selex	Mask	Mask			
	Want to BB sensors?	Yes – 2-3 W	?	Yes – 2-4 W	
	Need to BB FE-I4?	Yes – 1 W		Yes – 1 W	
	Need to BB PSI46?	?	?	?	
	Flip-chip?	≥ 10 FE-I4; ≥ 20 PSI46/dig		≥ 20 FE-I4 ≥ 40 PSI46/dig	
IZM	Mask	Depends on:			
	Want to UBM sensors?	1) Issues at Selex (6" upgrade) 2) Depends on CMS decision (profit of parasitic share)			
	Need to BB FE-I4?	Verify that there are FE-I4 from IBL extra production			
	Need to BB PSI46?	?	?	?	?
	Flip-chip?				

- Comment:
 - Costs depend on number of wafers to deposit: Selex does not works in batches, IZM does
 - Flip-chip of single chip is usually 50 € at Slex and 200 € at IZM,
 - Substantial overlap between ATLAS and CMS (same sensor wafers) - cost saving.