UNIVERSITAT DE BARCELONA

COTS: status

Upgrade of the front end electronics of the LHCb calorimeter

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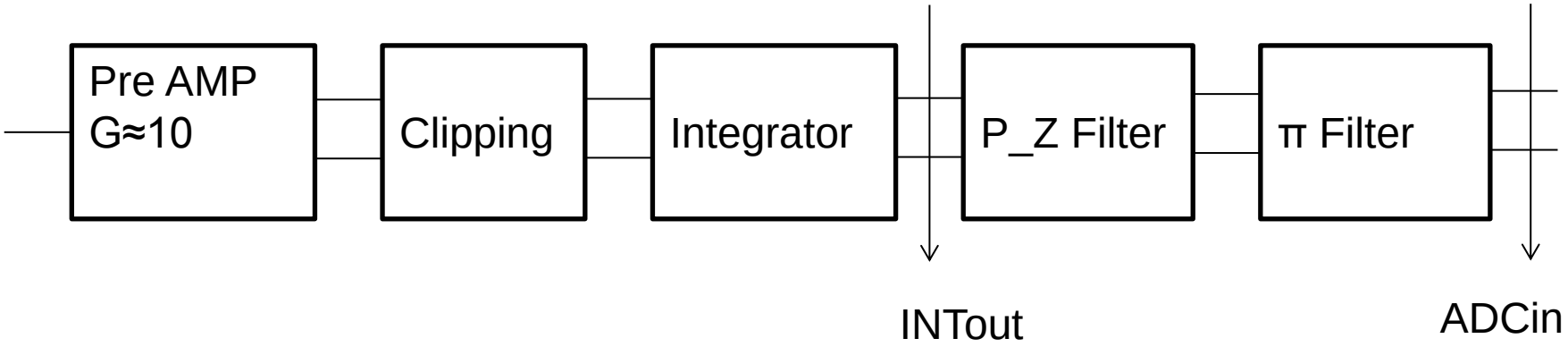
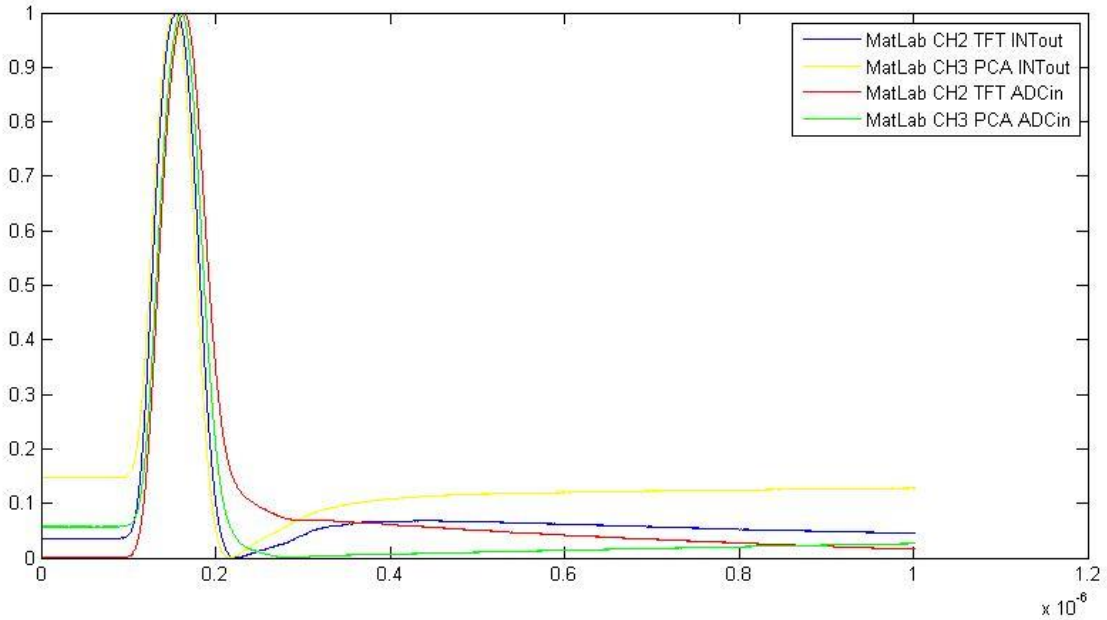
LA SALLE URL

Outline

- Old version (mezz v5)
  - Conclusion
- New version (mezz v6)
  - New bloc diagram
  - Early design
  - New Calendar

Old version (mezzanine v5)





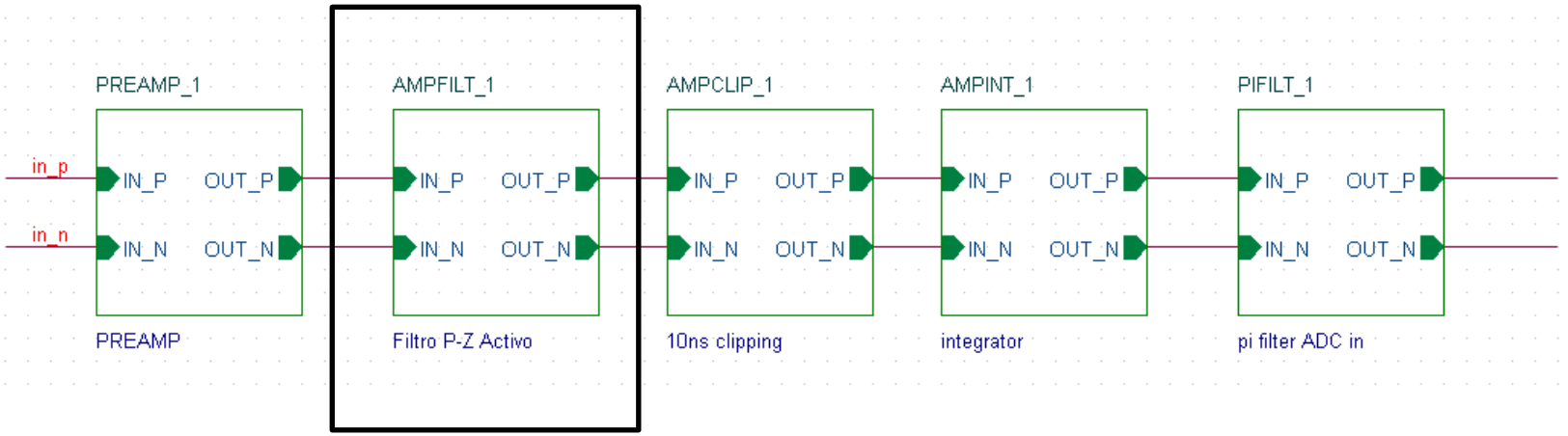
- Summary
- Normalized signals
- Best but bad results
- Plateau≈3.2ns < 4ns
- Critical Spill-over > 5%

No point to continue

- Objectives and problems
  - I tried to use C.Abellan design with minimum changes
    - With new Test Beam signal is impossible
  - Clipping circuit adjustment very delicate
    - Impossible to use clipping modifications for signal adjust
  - Simulation unhelpful due to incomplete AD4938 and AD4932 pspice models.
    - Very Slow development. (Component replacing one at time)
- Solution
  - COTS upgrade with active filter

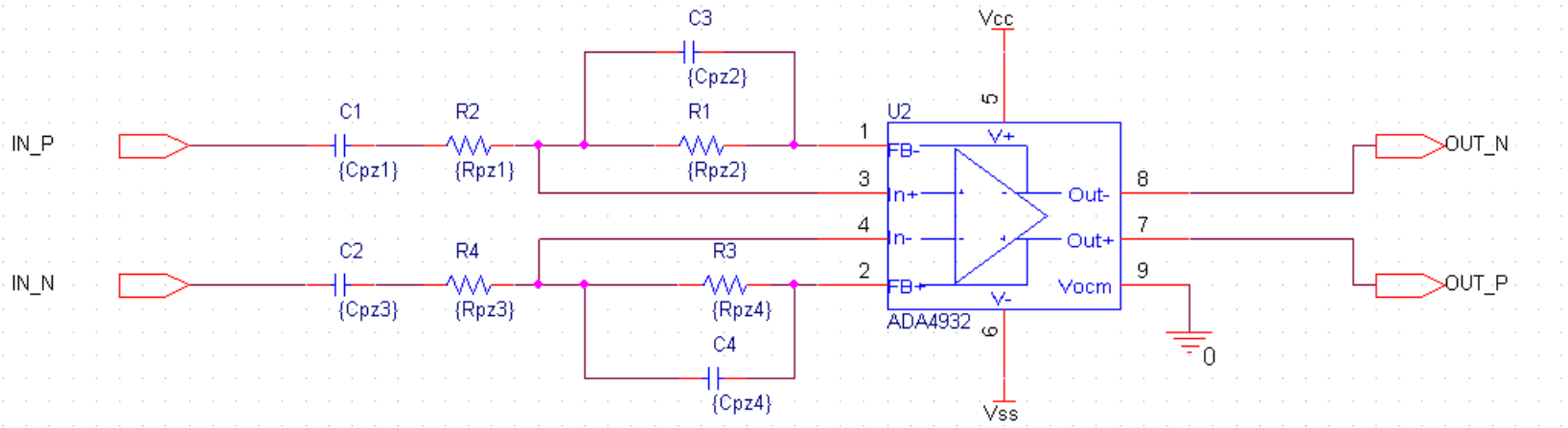
New version (mezzanine v6) New bloc diagram

- Added a P-Z filter after PreAMP



- Characteristics:
  - G=1 → AD4938 discarded
  - Pole & Zero not yet calculated

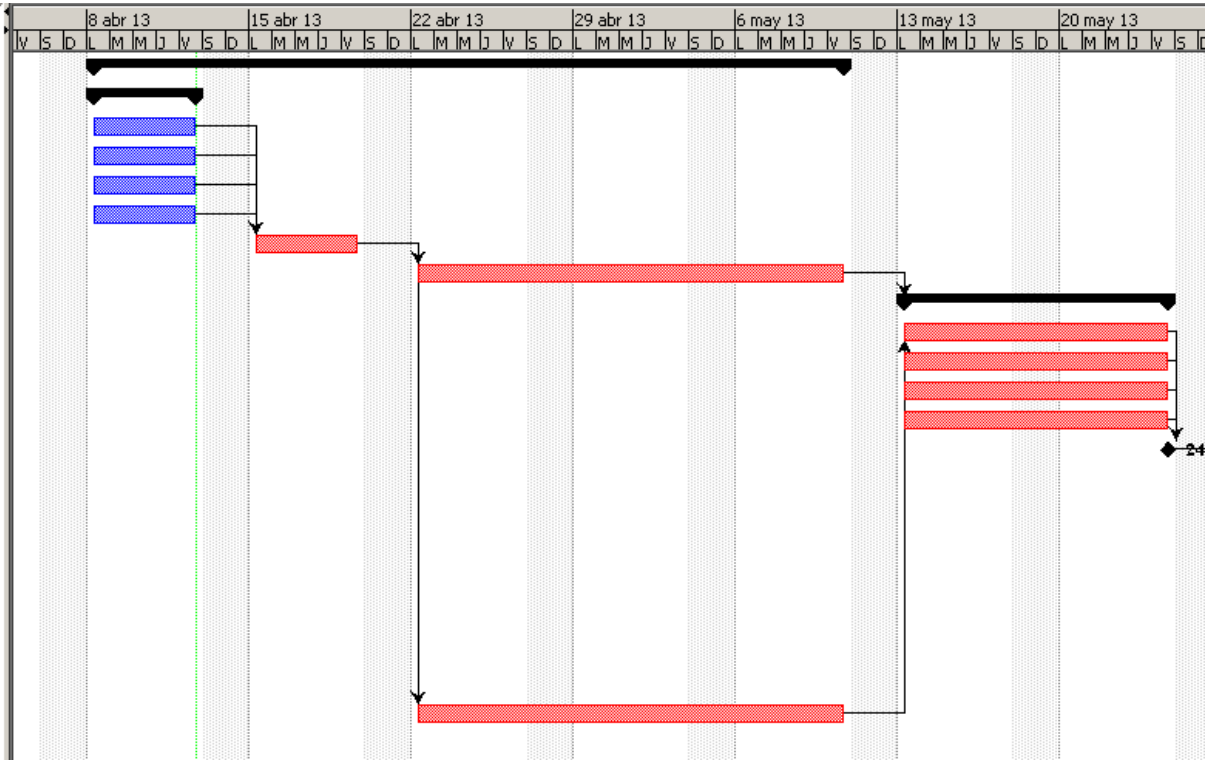
New version (mezzanine v6) Early design



- First attempt for signal filtering after first amplification
- Consequences:
  - New “small” single channel board has to be developed
  - Calendar modification

New version (mezzanine v6) New Calendar

		Nombre	Dura
1		**Analog tunning**	25
2		**iteration**	5
3		clipping + integrator	
4		Pole-Zero	
5		PCA tunning	
6		TFT tunning	
7		PCB redesign	
8		Fabrication	1
9		**iteration**	10
10		clipping + integrator	1
11		Pole-Zero	1
12		PCA tunning	1
13		TFT tunning	1
14		delay line selection	
15		**PCB variabilidad test**	43
16		**PCB**	25
17		PCB design	
18		Fabrication Time	1
19		Mount PCB	
20		**TEST variabilidad**	18
21		FEB-CAT-Tests	1
22		Setup work 1	1
23		Setup work 2	1



- I hope it's the worst calendar forecast
  - First tests Mid may