

Omega

Ecal Front End Electronics Status

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Orsay MicroElectronics Group Associated

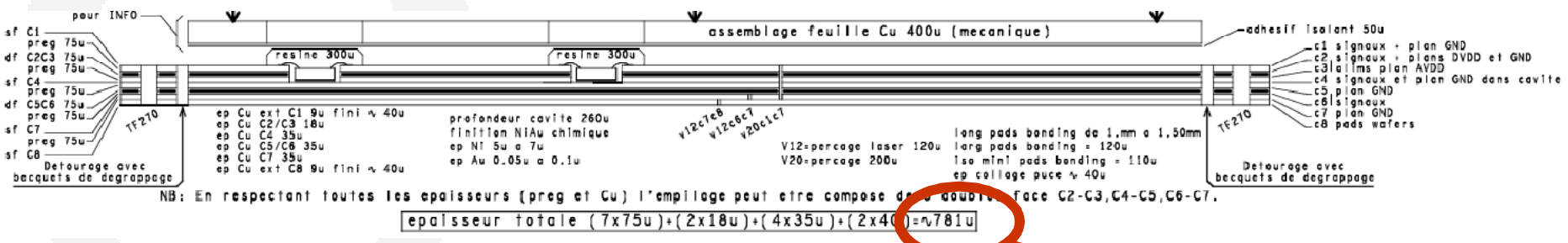
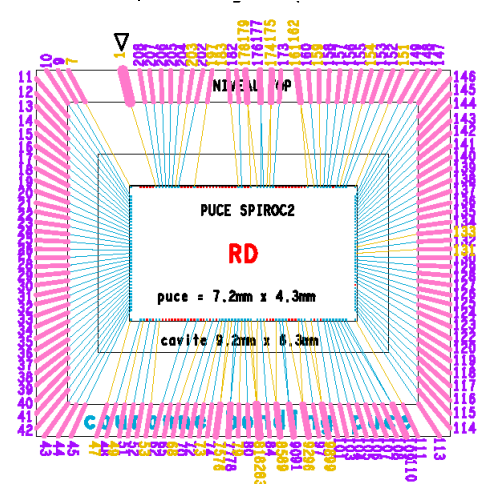
Chip Embedding



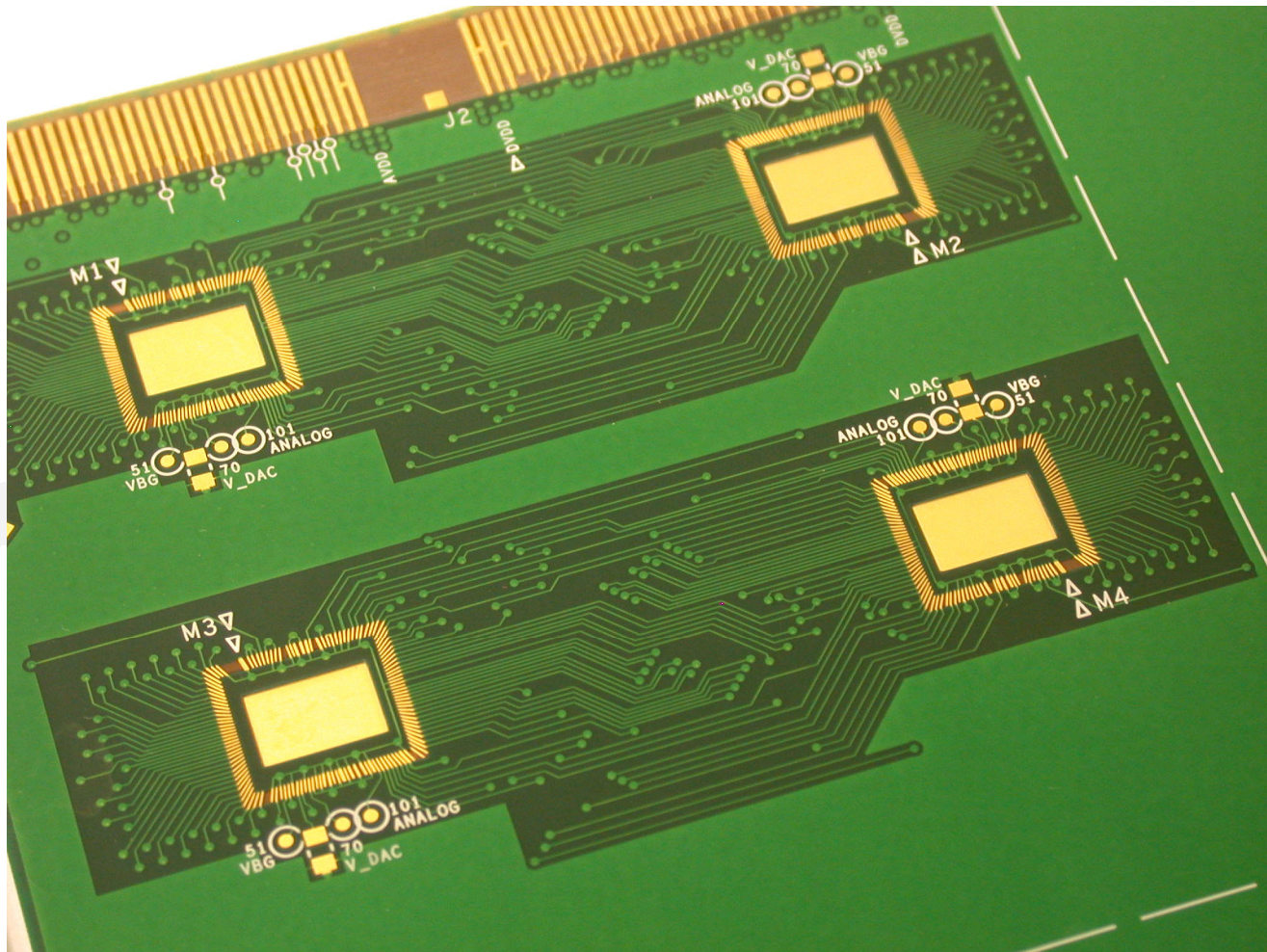
Pile-up	
TOP	GND + Input chip signal
C2	horizontal routing + DVDD + GND
C3	AVDD
C4	GND + vertical routing
C5	GND (pads signal shielding)
C6	pads routing
C7	GND (pads shielding)
BOT	PADS

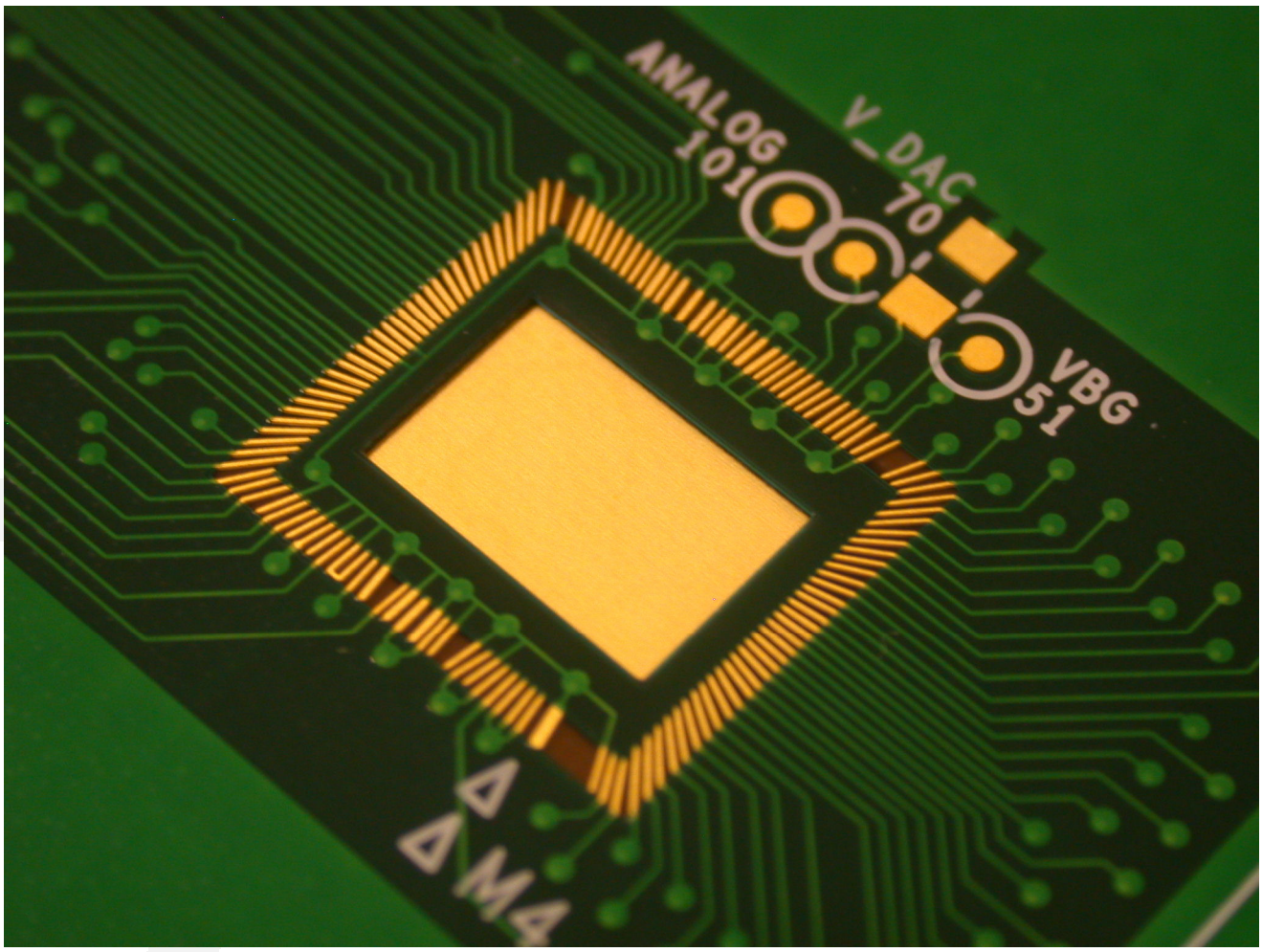
**FEV 7
COB**

- 4 drilling sequences :
- Laser C7-C8 120μ filled
 - Laser C6-C7 120μ
 - Mechanical C1-C7 200μ
 - Mechanical C1-C8 (for PCB fastening)

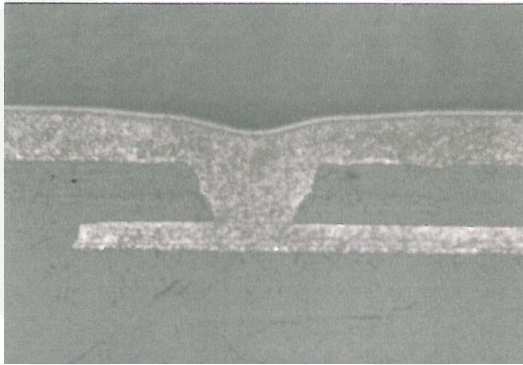


**PCB Thickness
~781μm**

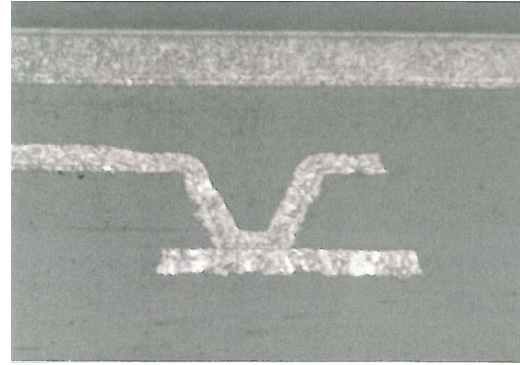




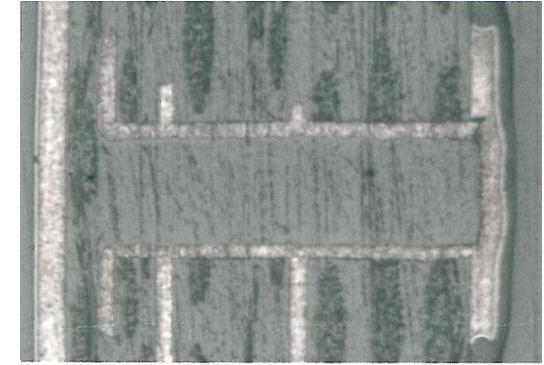
- 2 Manufacturers :
 - Elvia : 6 PCB received
 - Protechno : 6 PCB received
- Mechanical report :
 - Manufacturers Measurements :
 - 0.83mm Elvia, 0.93 protechno
 - LLR Measurements :
 - between 0.83 & 0.94 for **both** boards
- Plated Through Hole Cross Section :



Blind via (C7-C8)



Buried via (C6-C7)



Mechanical (C1-C7)

- For interconnexions purpose :
 - Use of FEV7-CIP boards (which fit in the U structure)
 - Successful results (P. Cornebise)
- For 1st electrical tests with DIF :
 - 2 PCB FEV7-CIP cabled with 1 chip
 - 1 Board FEV7-CIP fully equipped (4 chips)
 - 2 PCB FEV7-COB fully bounded
- FEV7-COB bounding :
 - **1830 €** for 2 boards (8 chips -> ~800 wires to bound)
 - Need to find an official agreement with CERN for bounding
 - Still resin trouble to solve for chip protection
 - We have to keep a low thickness of the cabled PCBs
- Upcoming FEV7-COB2 will fit into the H structure

Chip Embedding



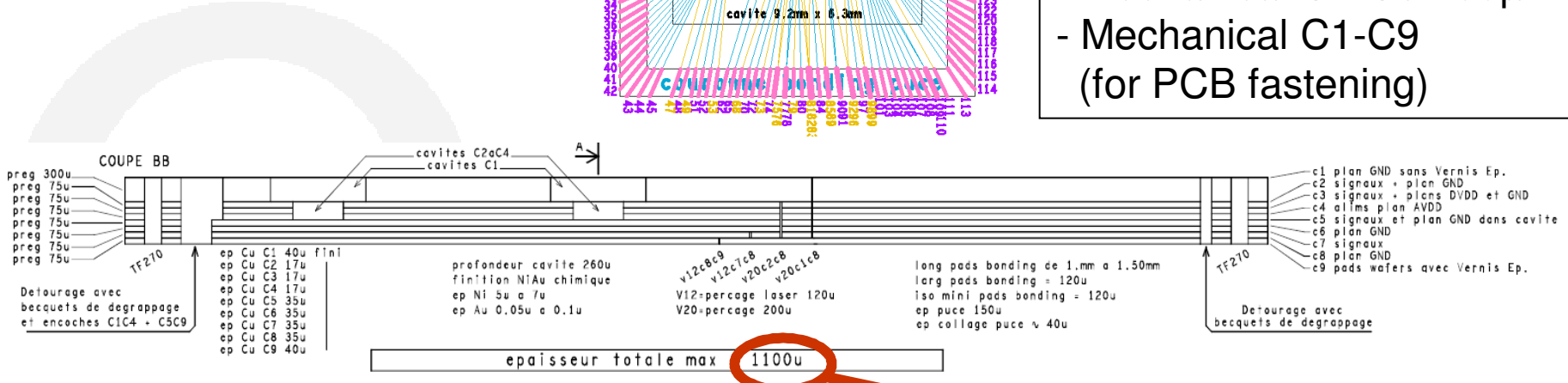
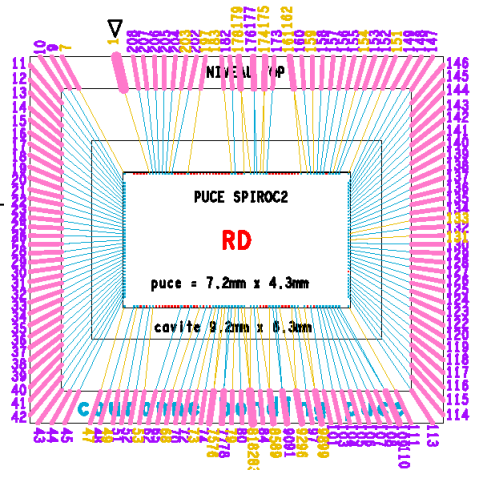
Pile-up

Top	GND cover layer
C2	GND + Input chip signal
C3	horizontal routing + DVDD + GND
C4	AVDD
C5	GND + vertical routing
C6	GND (pads signal shielding)
C7	pads routing
C8	GND (pads shielding)
BOT	PADS

FEV 7
COB2

5 drilling sequences :

- Laser C8-C9 120μ filled
- Laser C7-C8 120μ
- Mechanical C2-C8 200μ
- Mechanical C1-C8 200μ
- Mechanical C1-C9 (for PCB fastening)



PCB Thickness 1100 μm

FEV7-COB2 Cost



- FEV7-CIP & FEV7-COB board manufactured by 2 companies to ensure successful result
- FEV7-COB2 prices

FEV7_COB2 09xx	XXXXXX	QTE 10	QTE 50	QTE 100	OUTILLAGE	QTE 10 TOTAL HT
ELVIA	29--10	3325	12980	26240	900	4225
PROTECNO	23--10	13000			600	13600
le 30/10/09 D.CUISY CAO/LAL/ORSAY						

- We have lost 1 manufacturer !!

- No manufacturer critical issue with
 - FEV7-CIP
 - FEV7-COB
- No bounding issue with FEV7-COB for both manufacturers
- Price of FEV7-COB2 increase of 20% ...
- And we still have one manufacturer only !!
 - See with korean group
- Main question for future : COB or COB2 cell ???
 - Price/integration/processing ...