

Omega

Ecal Front End Electronics Status

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Orsay MicroElectronics Group Associated

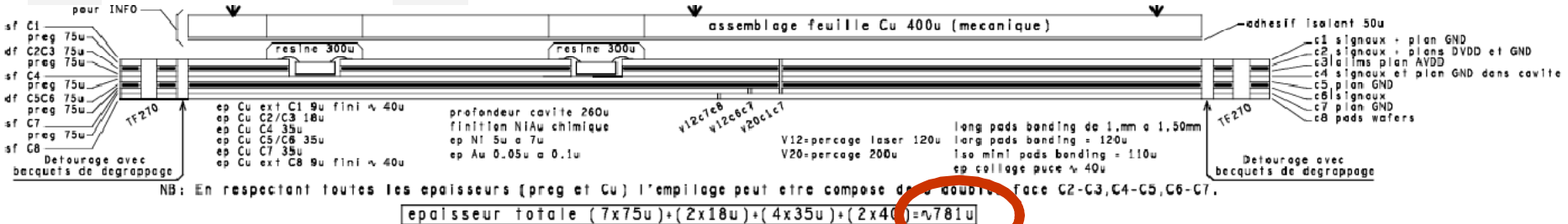
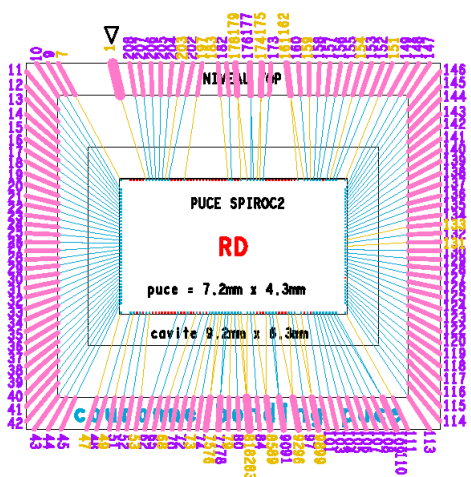
Chip Embedding



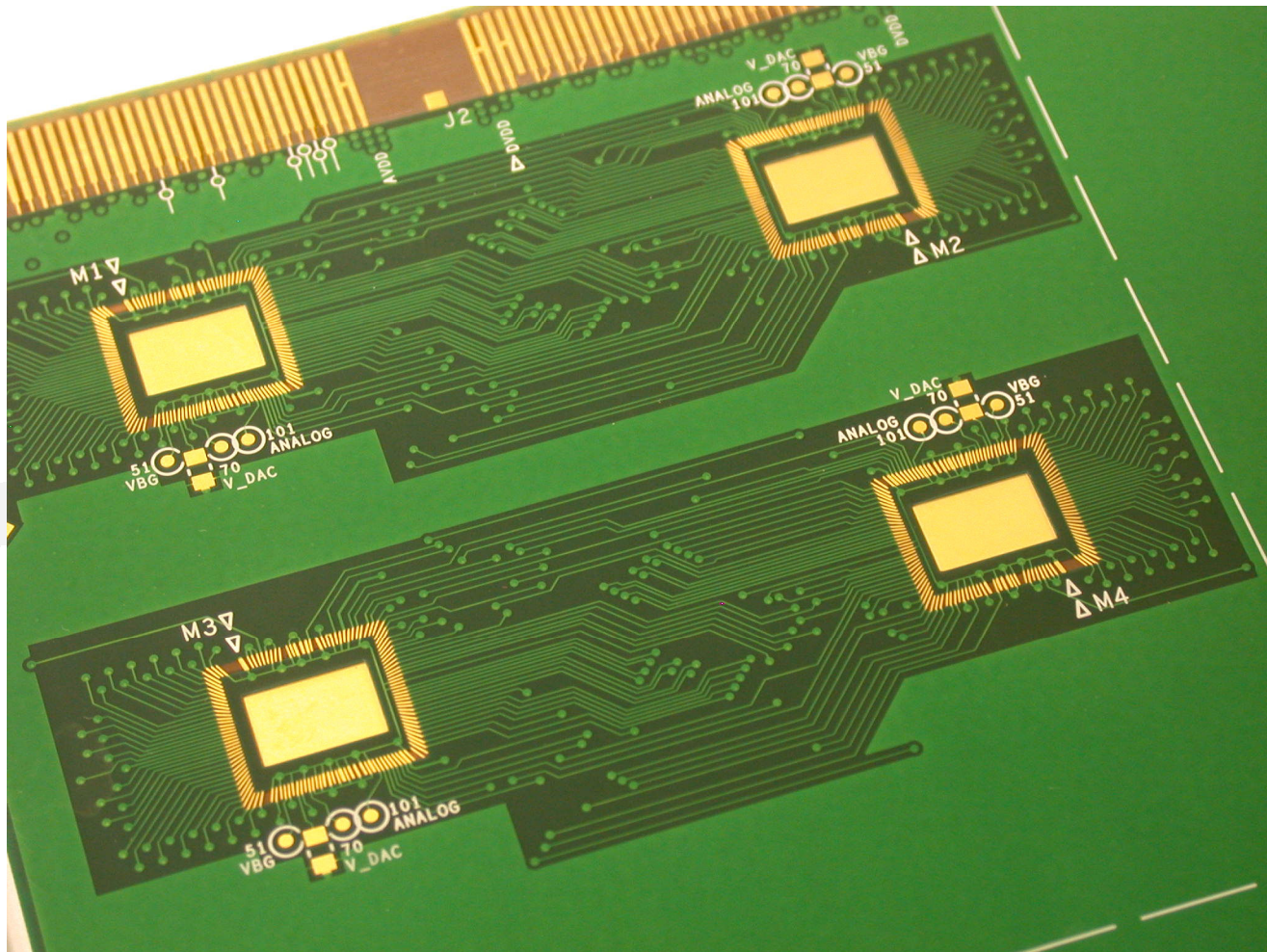
Pile-up	
TOP	GND + Input chip signal
C2	horizontal routing + DVDD + GND
C3	AVDD
C4	GND + vertical routing
C5	GND (pads signal shielding)
C6	pads routing
C7	GND (pads shielding)
BOT	PADS

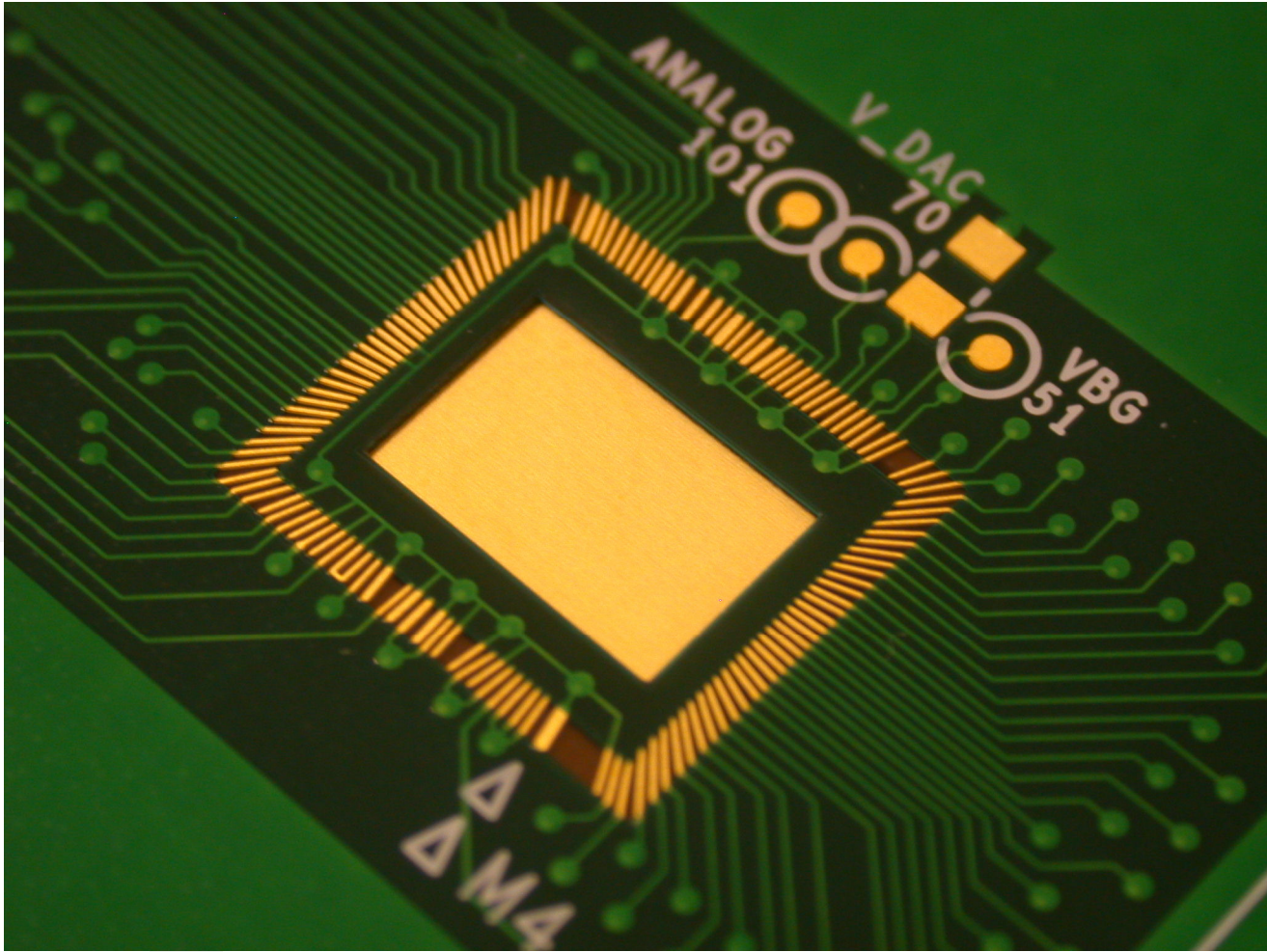
**FEV 7
COB**

- 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**





- For interconnexions purpose :
 - Use of FEV7-CIP boards (which fit in the U structure)
 - Successful results (P. Cornebise)
- For 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 bonded
- FEV7-COB bonding :
 - We have an official agreement with CERN for bounding (free !)
 - 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



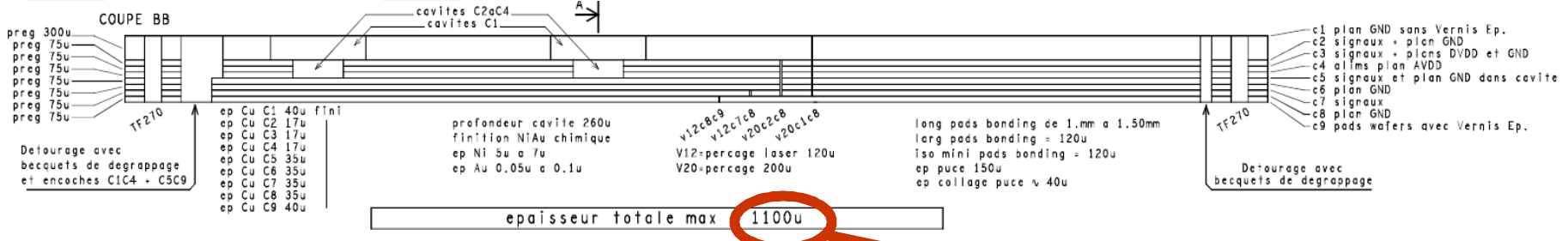
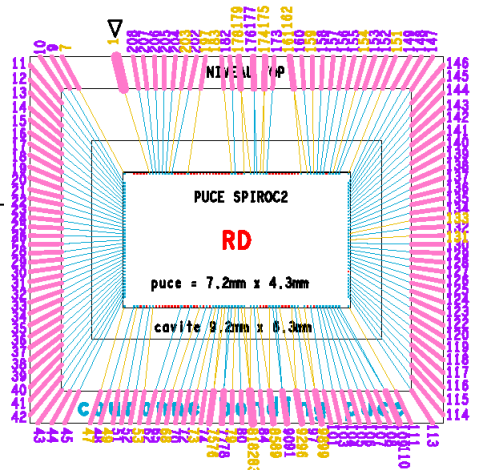
Pile-up

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

- No manufacturing critical issue with
 - FEV7-CIP, FEV7-COB
- No bonding issue with FEV7-COB
- Price of FEV7-COB2 increase of 20% ...
 - Delivery expected end of march (2010 !)
- Main question for future : COB or COB2 cell ???
 - Price/integration/processing ...
- Next FEV8 will have 16 chips
 - 1024 channels on 180 mm x 180 mm board
 - Our Korean colleagues (Sung Kyun Kwan University) should take in charge half of the next FEV8 production