Overview

-: an electrically fully functional module (E-MCM) is an important milestone in our project!

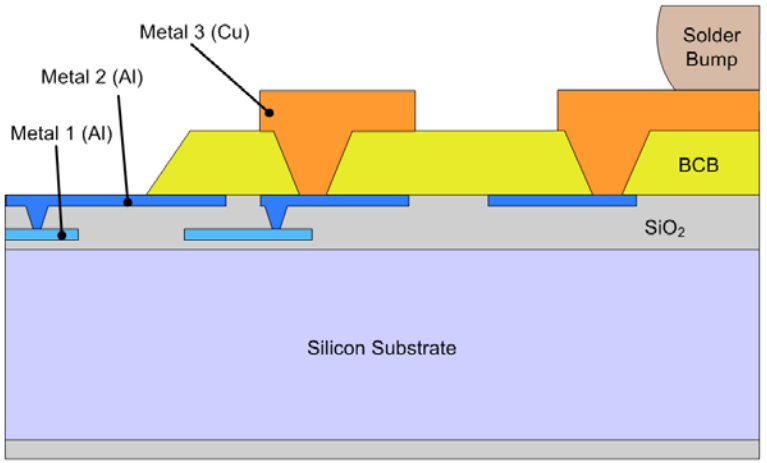
-: Christian Kreidl did the first step with his layout, more have to follow.
- adapted it to the new mechanical envelope
- we still have to define the test structures in the “sensitive” region
- ....

-: production of these substrates is planned to be done in the main HLL lab, with improved on-chip interconnection technology (double Al and Cu)

-: apart from the careful layout and routing of the three metal layers on the substrate, the most important and new steps are the

-: 3rd metal layer in Cu and the

-: Flip Chip to the substrate



3rd Metal in Cu at HLL

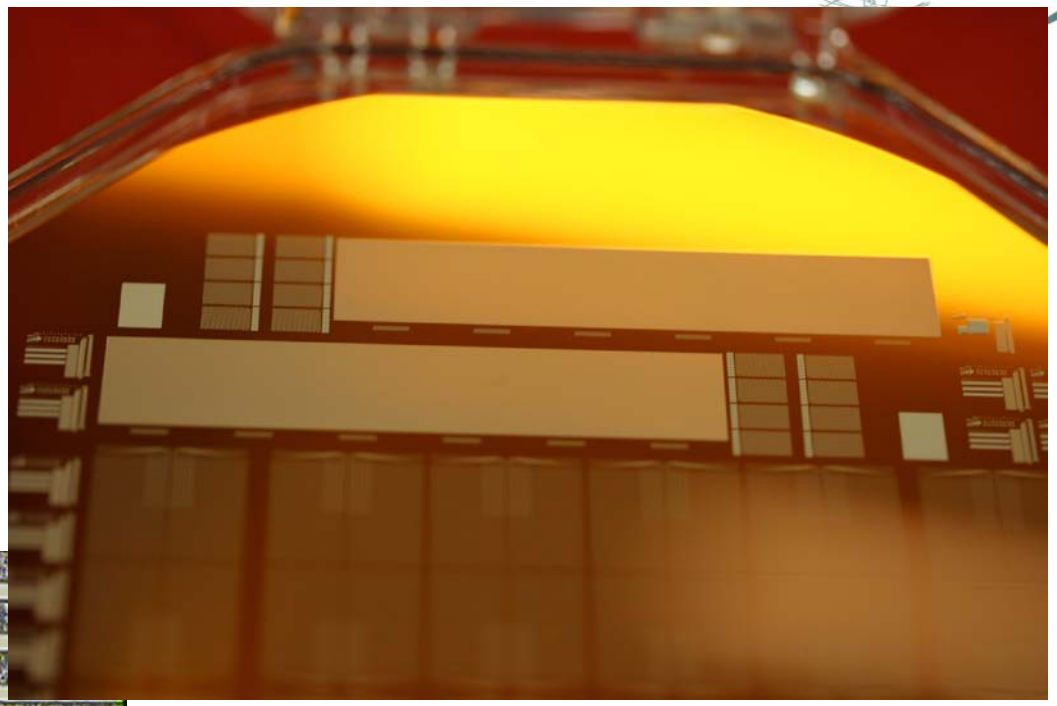
-: Co-operation with Siemens CT

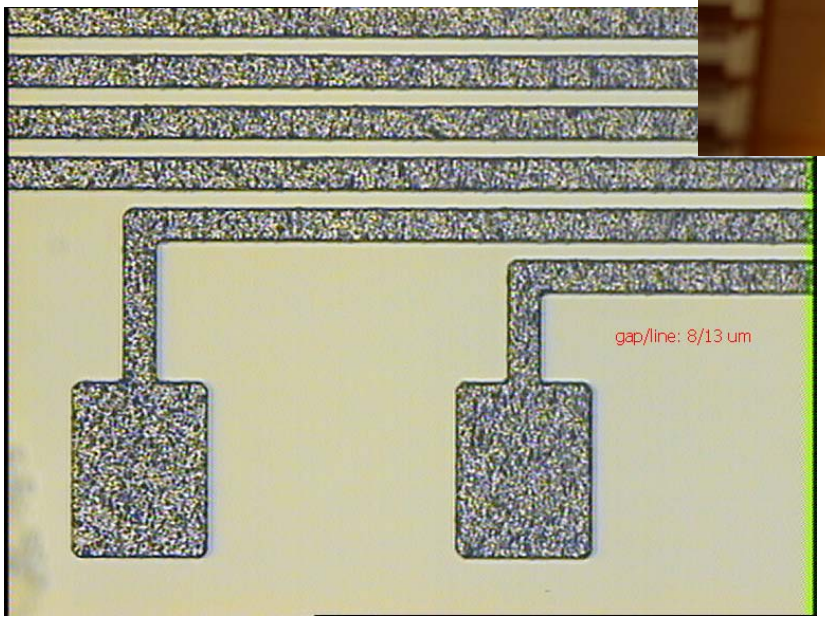
Siemens CT

-: sputter barrier and seed layer
-: litho for electro-plating (later HLL)

HLL

-: Cu electro-plating
-: Cu and barrier layer removal





-: electro-plating established

-: Cu seed etching with commercial etchant
-: Ti:W etching with custom made mixture
→ Al selective
→ both Cu and Al on the same wafer

First metal dummies produced, more to follow

→ Cu at HLL is ready

Flip Chip at CNM 2011

-: For the past projects at CNM see Enric's talk ....

Plans for 2011:

Flip Chip bumped ASIC dummies produced at CNM 2010 to single Alu – Cu samples

Objectives:

-: test the quality and yield of solder bump bonding to HLL Cu layer
-: design jig and setup flip chip procedure for the assembly of the E-MCM

Work sharing:

-: HLL: to produce Al-BCB-Cu substrates with new mechanical layout, including test structures

-: CNM: Jig design and fabrication (at FC150 manufacturer), flip chip

-: HLL: test of the assemblies

Goal:

-: at the end of this project, we should be able to flip chip active ASICs (DCD, DHP 0.2, SW) to the E-MCM substrate

Assembly of the E-MCM (and later the the real modules)

Planning the E-MCM assembly triggered first internal discussions about the module production.
A possible scheme would be (this is for discussion, now or in Hexenzimmer ...):