SMD placement @ NTC

- ✔ A little bit of history
  - ➔ NTC had problems with efficient ball placement using their PacTech machine
  - ➔ Apparently the laser was not “strong enough” and some balls wouldn’t stay on the pads
  - ➔ 4 e-mcm samples sent to PacTech to confirm
    - ↳They could not do it neither with the same model as NTC
    - ↳They succeeded with another machine with a stronger laser

PacTech tests

- ✔ 150 µm balls in all pads
- ✔ Solder alloy: Sn64Pb37
- ✔ No chuck heating
- ✔ No flux
- ✔ Pads needed to be cleaned (Cu oxide)
- ✔ No shear tests made
- ✔ No height measurement made

Big Pads (0402)

- ✔ 2 balls per pad
- ✔ No problems found

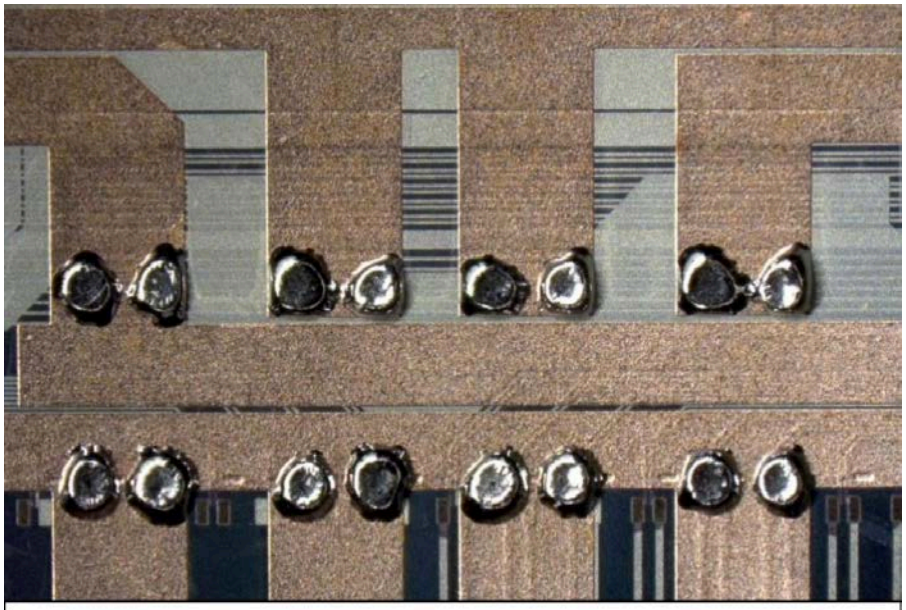

Fig. 5: Overview of big pads after Bonding

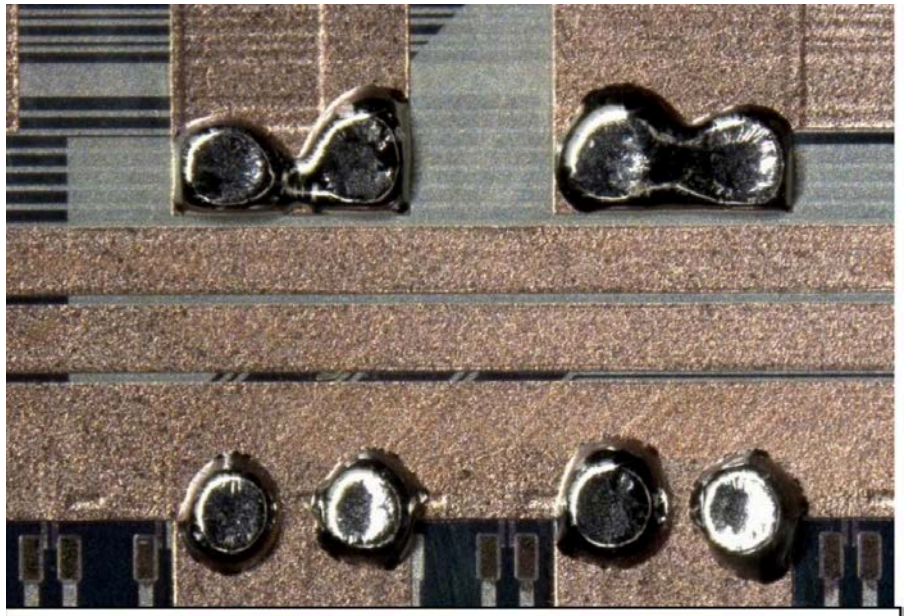

Fig. 6: Detail view of big pads after Bonding

Medium Pads (0201)

- ✔ 1 ball per pad
- ✔ Mainly no problems found
- ✔ Some issues in 2/4 modules (see later)

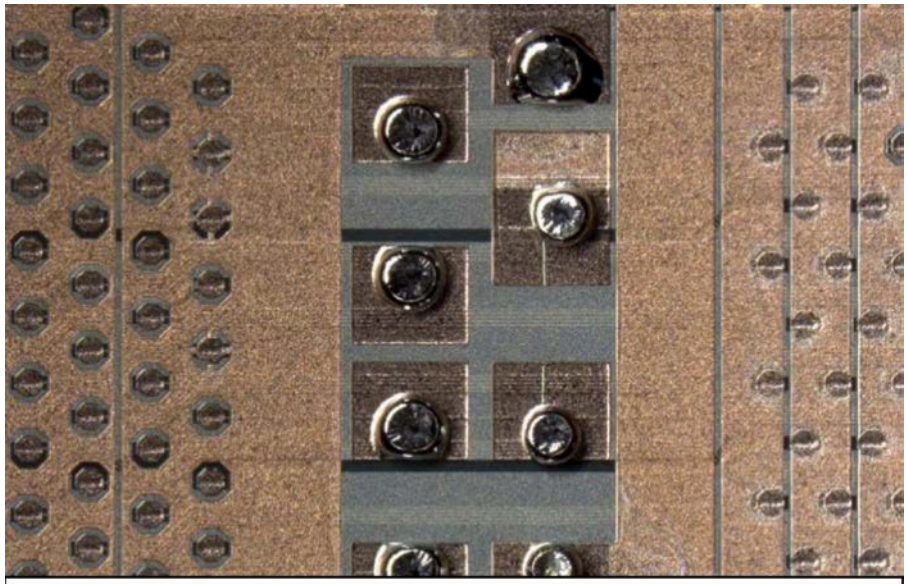

Fig. 7: Overview of med. pads after Bonding

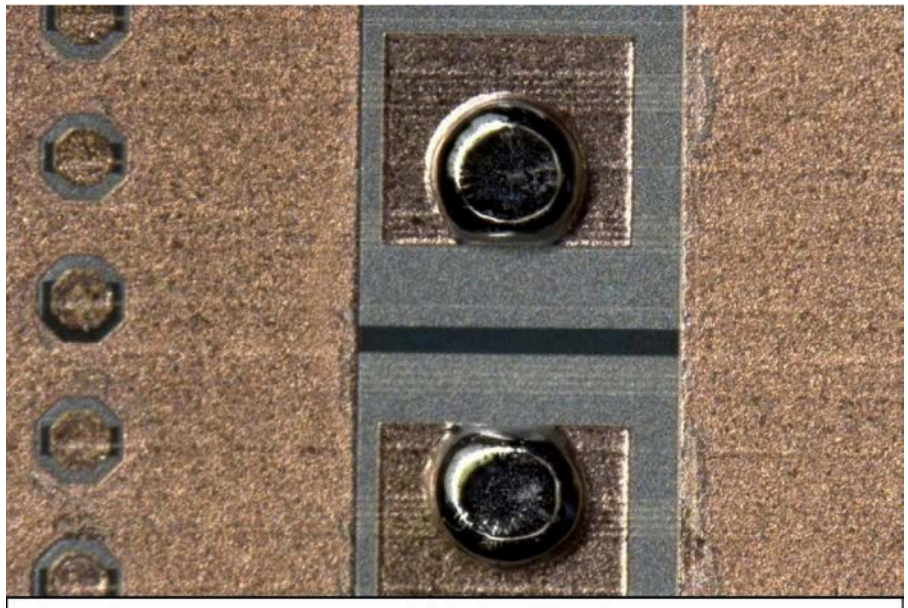

Fig. 8: Detail view of med. pads after Bonding

Small Pads (01005)

- ✔ 1 ball per pad
- ✔ Mainly no problem.

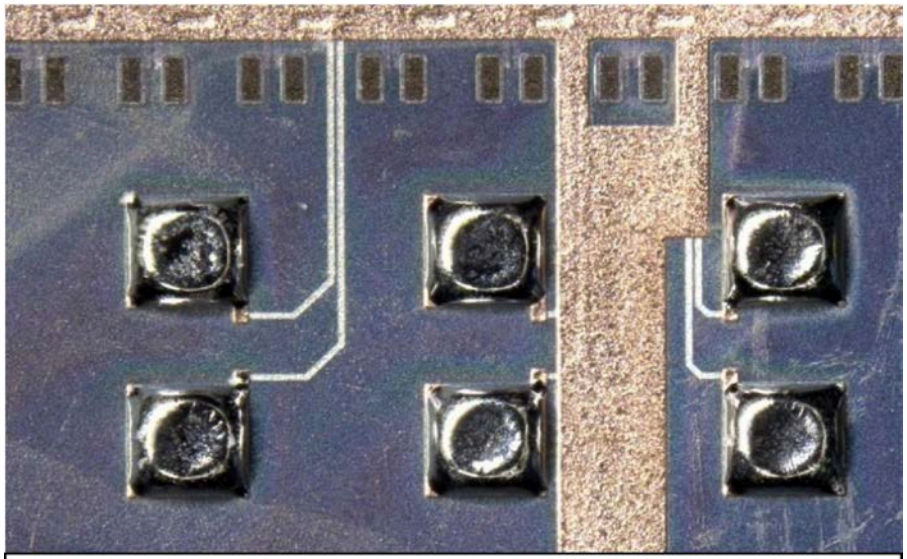

Fig. 9: Overview of small pads after Bonding

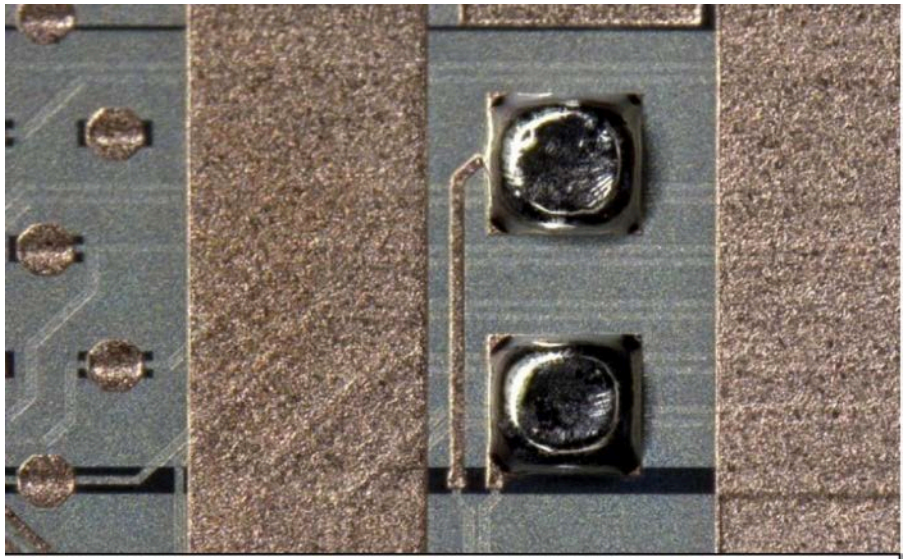

Fig. 10: Detail view of small pads after Bonding

Problems in Medium Pads

- ✔ In two of the modules problems found in the region between the DCD and DHP (no chips on e-mcm)
- ✔ What they say in their report:
  "…the pads in this Areas had a different shape as the other ones. He mentioned there were some kind of grooves in the pad and he had problems with the wettability on the Pads of 2 substrates"

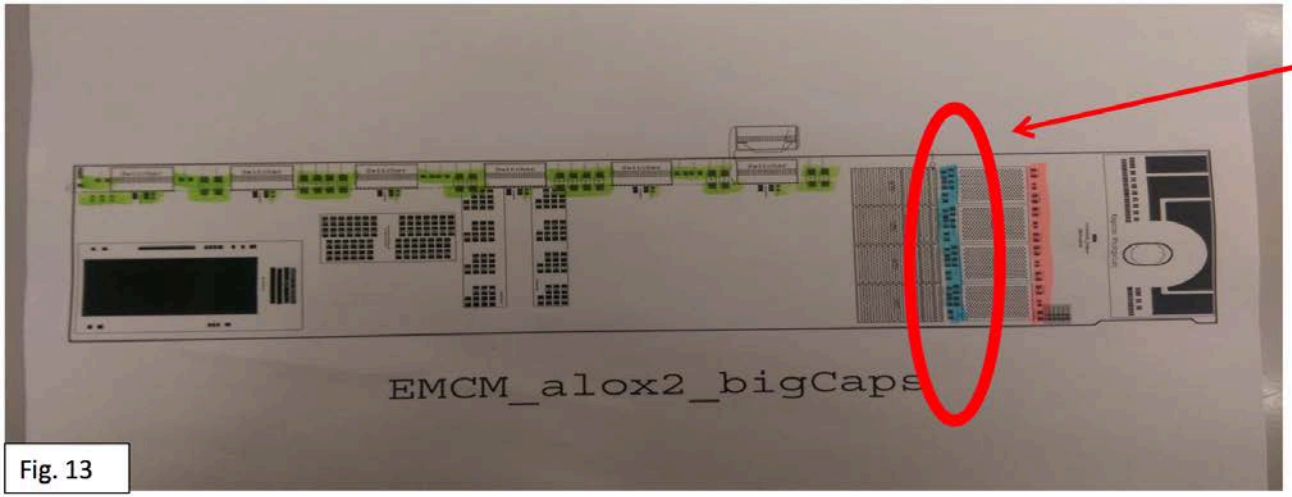

Fig. 13

Pads where some issues were detected during automatic process

Problems in Medium Pads

- ✔ They see
  - ➔ Burnings (Fig. 11)
  - ➔ Misalignments (Fig. 12)

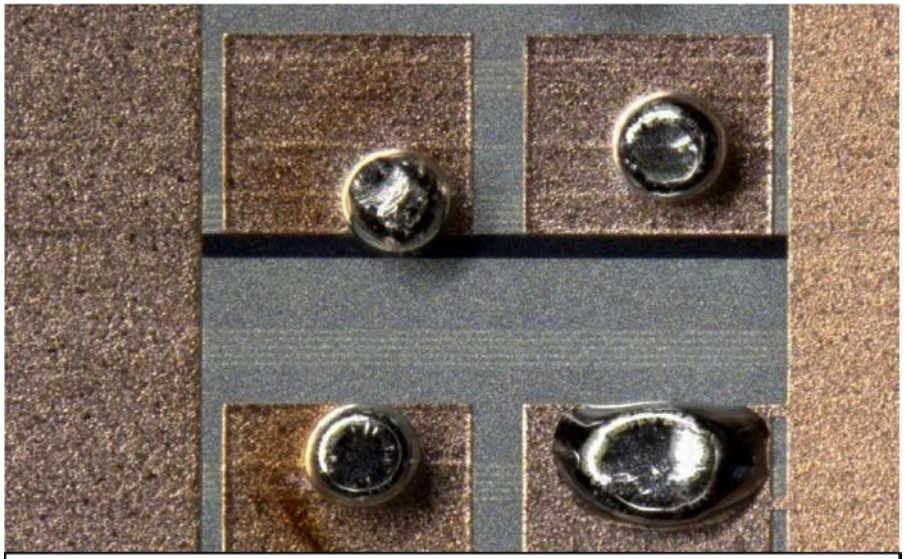

Fig. 11: Burnings during setup process

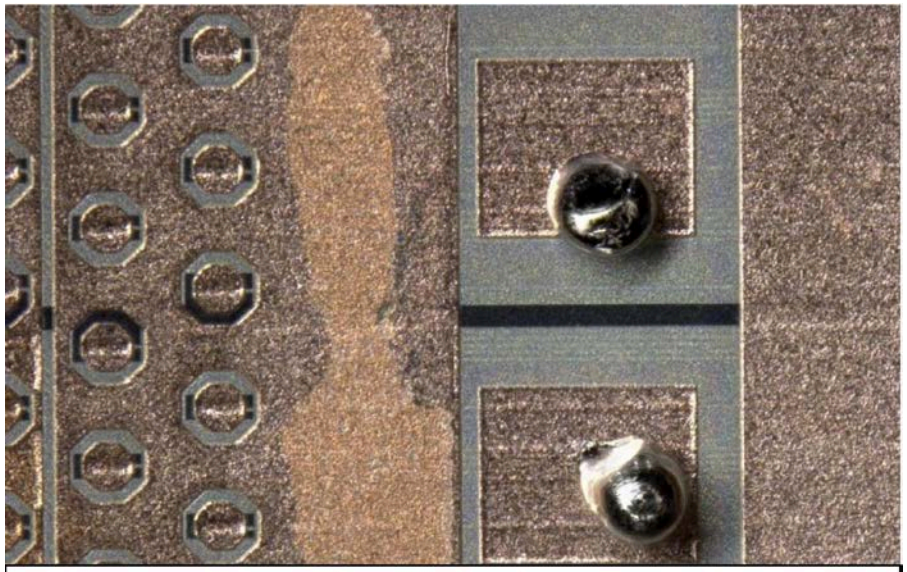

Fig. 11: Misalignments during setup process

The future

- ✔ PacTech offers to rent the machine (a demonstration machine) with a purchase option.
- ✔ The idea is to rent it for the pilot production and if everything is properly working at NTC we buy it for the production
  - ➔ PacTech will bring to NTC the very same machine they have used for the tests. This should happen very soon.
  - ➔ Process is tested here
    - ↳We still need to optimize the amount of solder
  - ➔ actual SMD placement process also settled.
- ✔ The pilot production will last a couple of months and there is a gap of 6 months until the final 6 month production starts.
- ✔ This plan only makes sense if NTC buys the machine.
  - ➔ NTC+IFIC are working to find the funds. However that might not be possible…