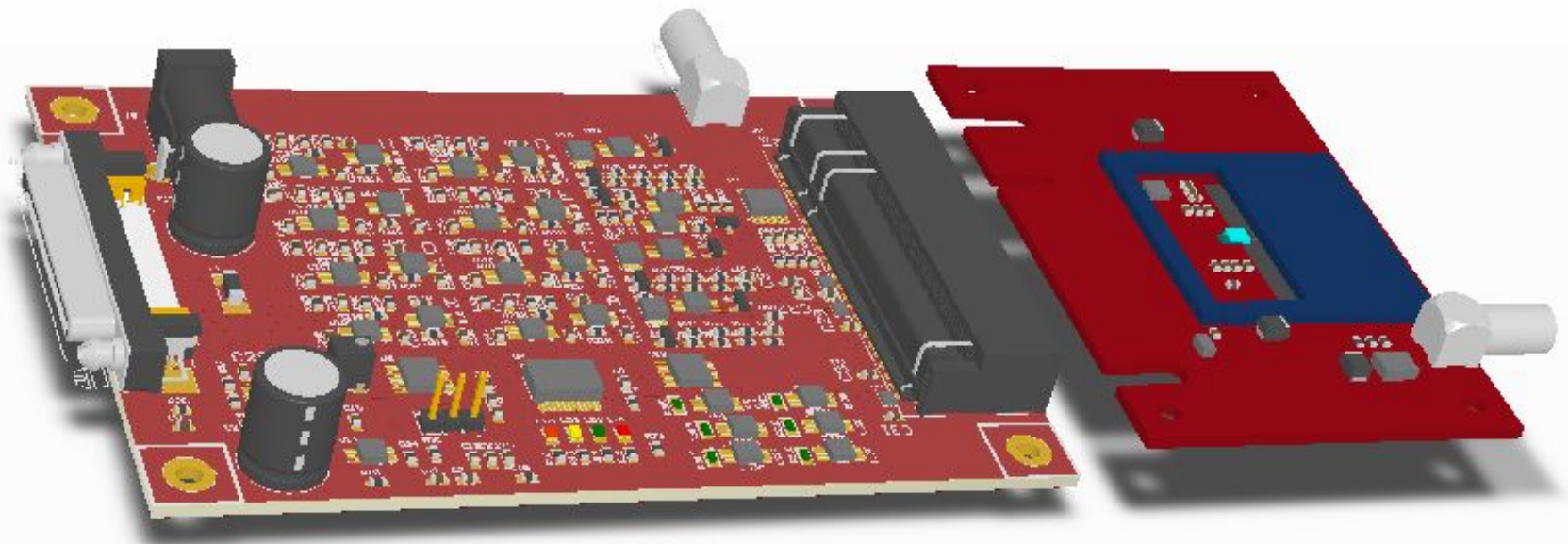


CCPDV3 & CLICpix *readout status*



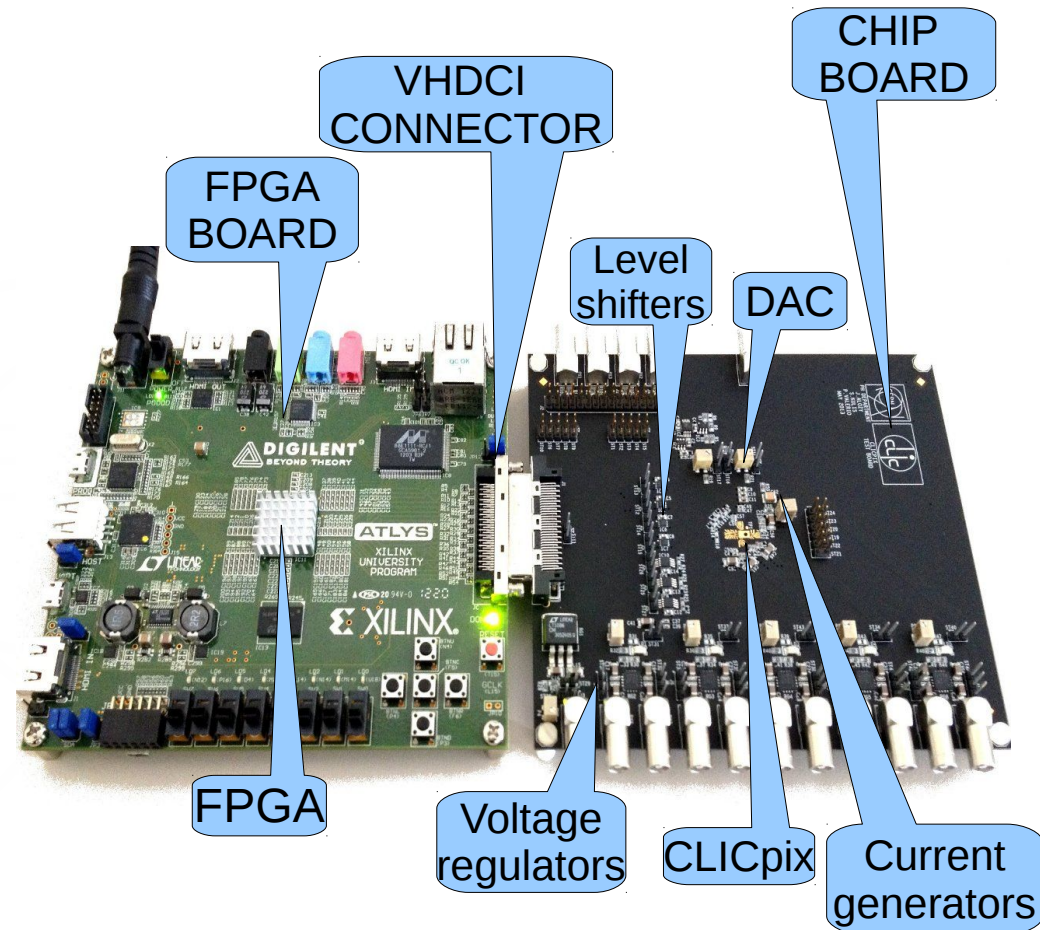
CLICpix readout

CLICpix

- Configuration: several 8 bit registers + matrix configuration 24kB
- Data transition custom serial interface @ 320 MHz

CLICpix readout

- Readout is ready (was used for chip parametrization)



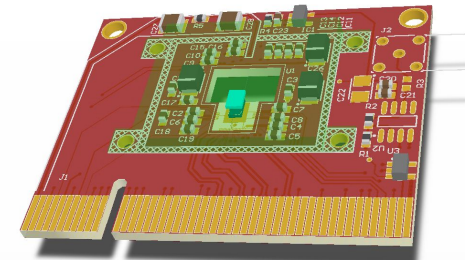
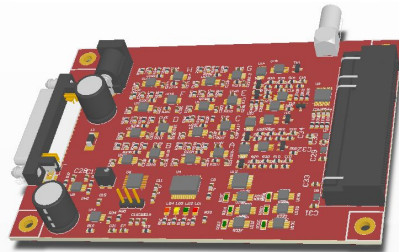
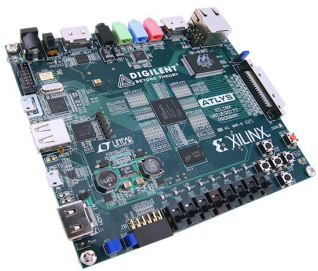
Proposition of new readout system

**FPGA
(Atlys board)**

Interface board

- voltage regulators (with monitoring)
- current generators
- level translators
- ADC / DAC

CHIP under test
(decoupling capacitors)



VHDCI connector



PCI Express

Pros of new modular readout scheme

- **Easier calibration** of on board voltage references, current references, power supplies
(one calibration per readout system, not one per chip)
- **Cheaper**
 - Chip board is very simple, almost no components
(reduces also cabling cost)
 - No expensive connector on each chip board
 - Appropriate technology can be used for each PCB
(more layers for interface board, higher precision for chip board)
- **Swapping chips is very easy & fast**
(electrical calibration stays the same)

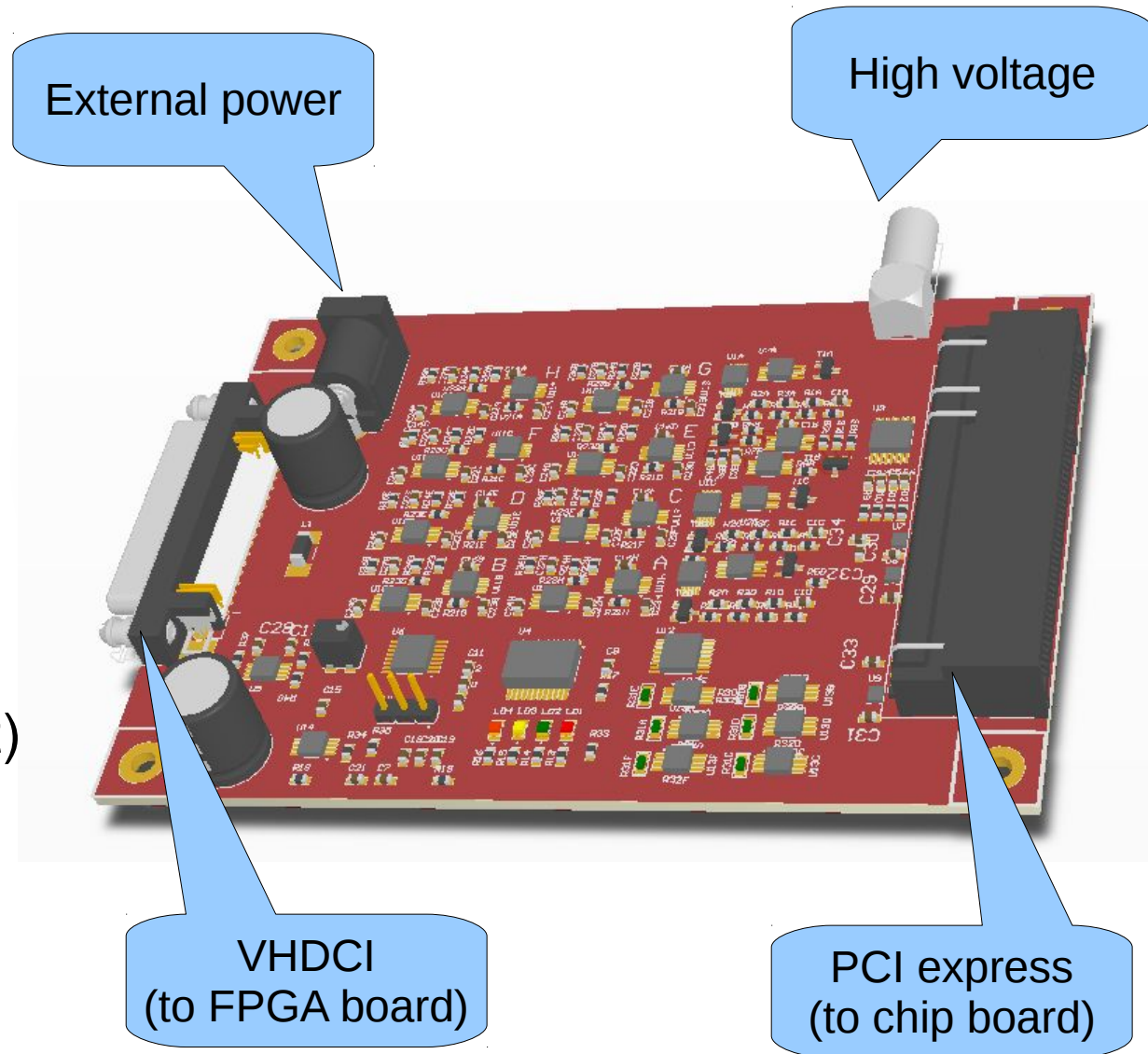
Interface board

Analog

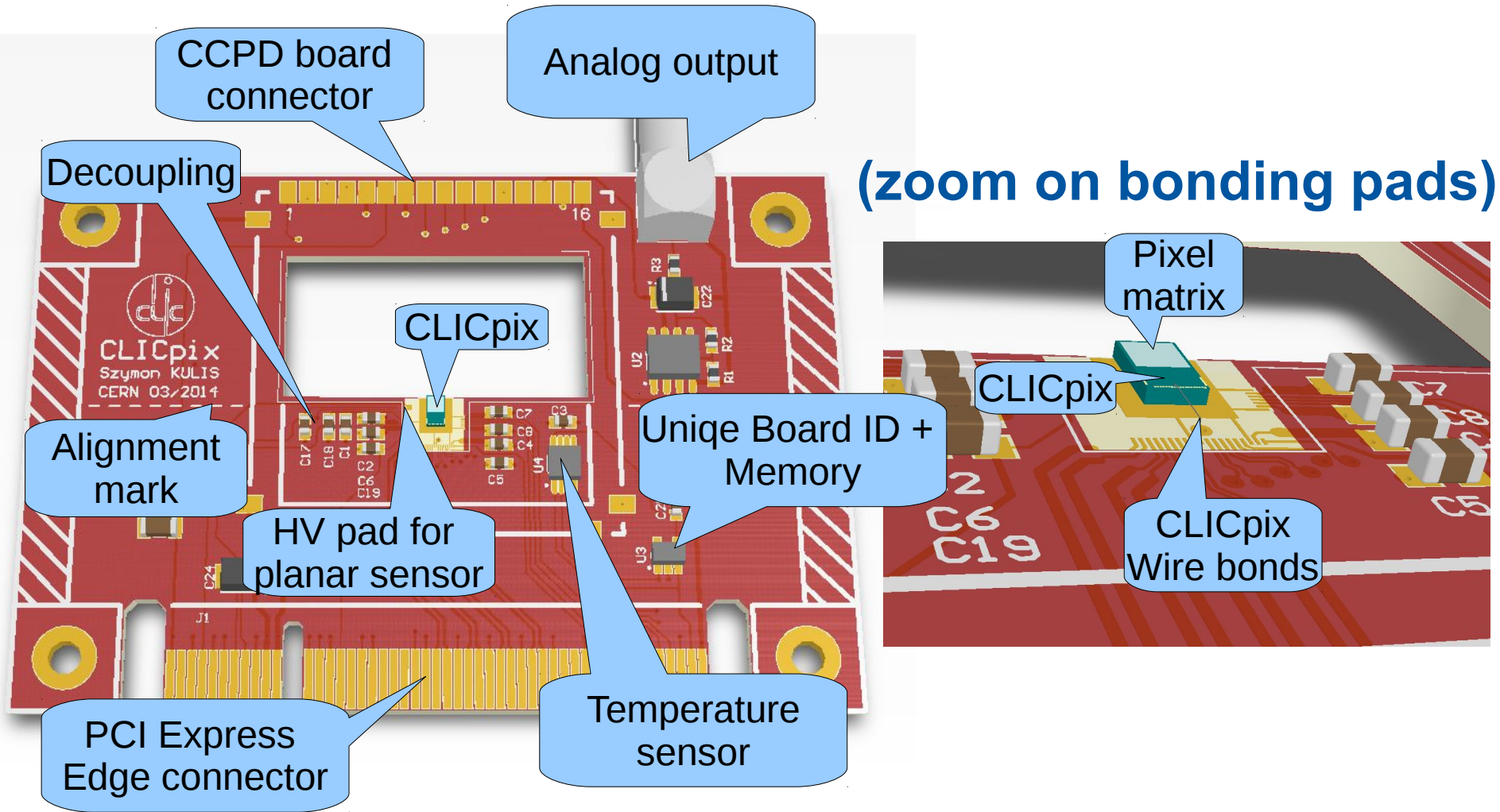
- 8 x general purpose power supply
- 4 x voltage outputs)
- 4 x current outputs
- 4 x voltage inputs
- High voltage input

Digital

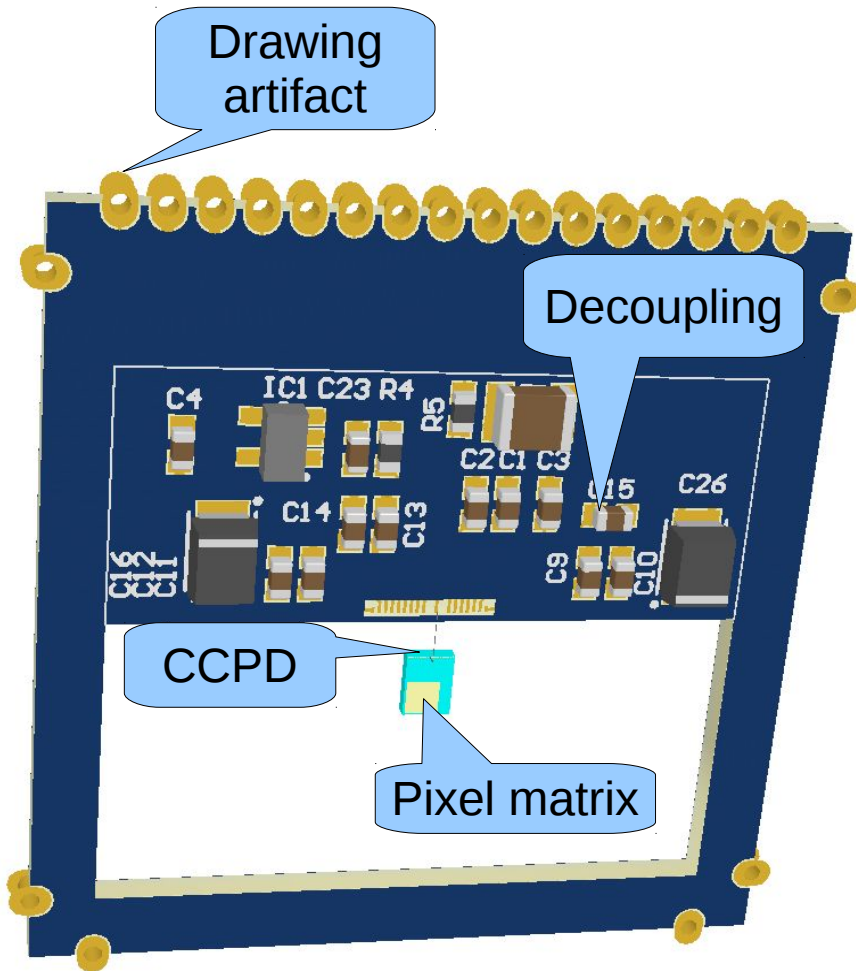
- 12 x general CMOS signals (Input / Output)
- 12 x differential pairs | (Input / Output)
- I²C bus
- Status LEDs



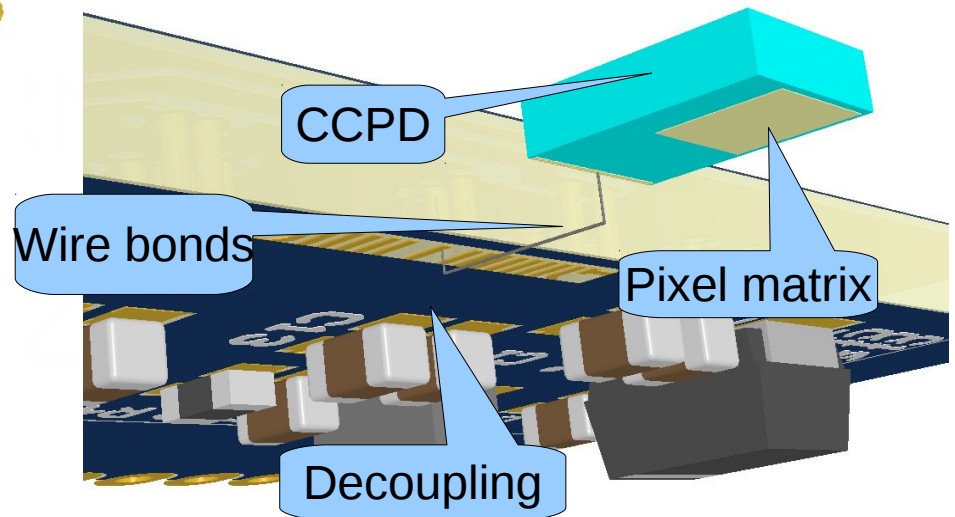
CLICpix chip board



CCPD chip board (bottom side view)

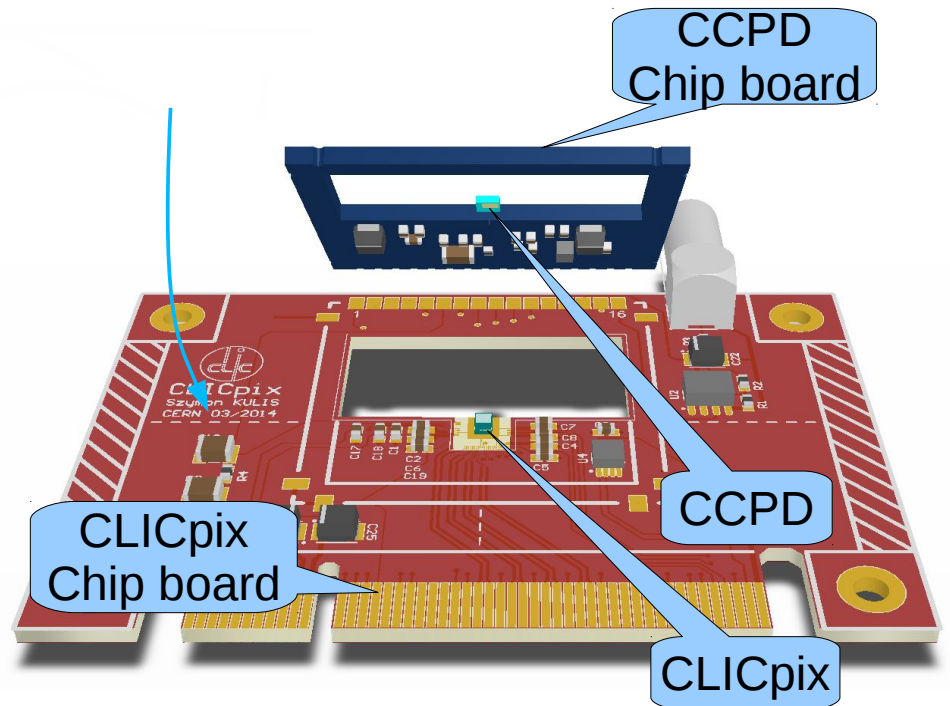


(zoom on bonding pads)

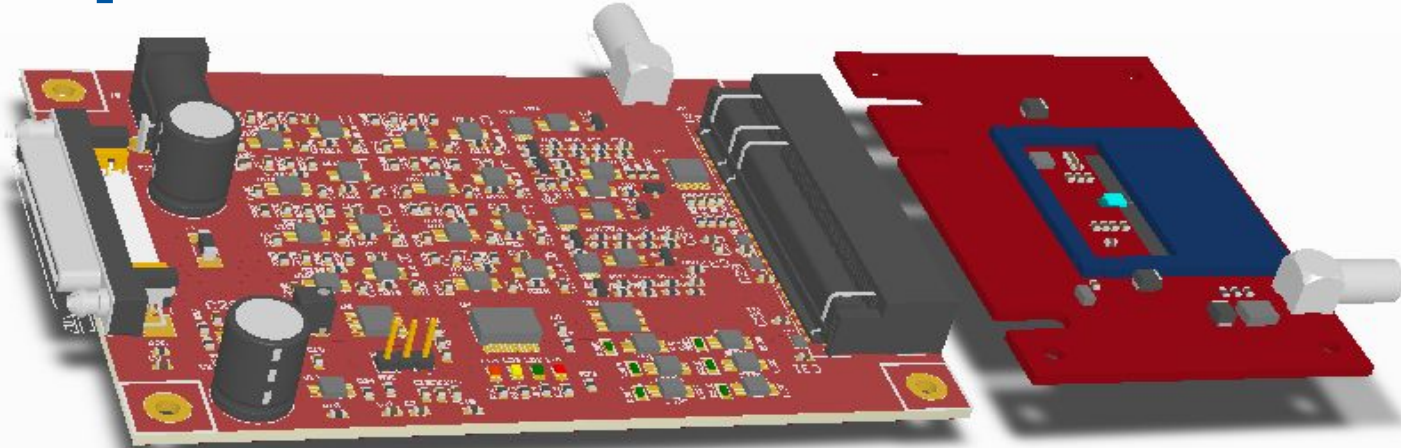


CLICpix / CCPD assembly scenario

- 1) Components **cabling** on CLICpix board
- 2) Components **cabling** on CCPD board
- 3) **Merging** the boards
(standard soldering)
- 4) **Gluing** CLICpix/CCPD
assembly to the
CLICpix board
- 5) CLICpix **wire bonding**
- 6) CCPD **wire bonding**
- 7) Taping protection shield



CLICpix & CCPD readout status



Printed circuit boards

- Schematic ✓
- Layout ✓
- Documentation (user's and manufacturing) ✓
- Manufacturing (in progress)
 - PCB production ✓
 - Gathering components ✓
 - Cabling (just starting) ~ 2 weeks
 - Wire bonding ~ days

Firmware/Software

- Porting old design to the **IPBUS framework** has started
- **New components have to be developed** (controlling analog parts, CCPD interface ...)