

# A UNIQUE fast and flexible pixel evaluation & demonstration's platform



## Very flexible approach:

- Up to 8 signal control per pixel line
- Rising and falling edge slew rate control
- Up to 3 level voltage applied on signal control lines
- Large range of power supplies
- Timing adjustment through IHM /EK
- Column bandwidth adjustment
- Column current control
- Matrix power supply dynamic control
- XY addressing through column control
- Test unit to visualize pixel signal control

## Compatible with :

- Different pixel sizes ( <math>< 1\mu\text{m}</math> up to <math>> 500\mu\text{m}</math>)
- Different architectures (3T, 4T, 5T ...)
- Shared architectures
- Ultra low noise pixel measurement
- Backside illumination
- High resistivity substrate
- Negative voltage on pixel control line
- Large range of power supply inputs
- HDR pixel with multiple readout
- Bulk biasing
- TDI operation
- NMOS/PMOS pixel type
- 3V3 & 5V option
- Non destructive readout
- Post process options
- CCD (charge transfer) concept
- Mechanical shutters and/or flash lights

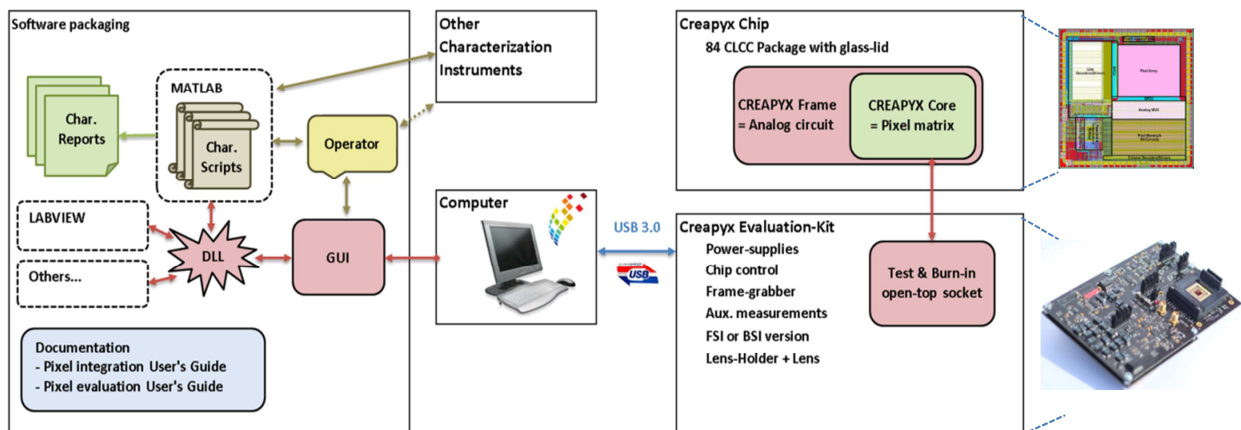


Figure : Pixel evaluation platform overview

## CREAPYX chip

Maximum resolution : VGA format

The chip package is a 84 lead ceramic LCC, sealed with a epoxy glued glass lid (Can be removed through heating)

The total die size is 6,0 mm (V) x 5,9 mm (H) ,compatible with standard MPW site.

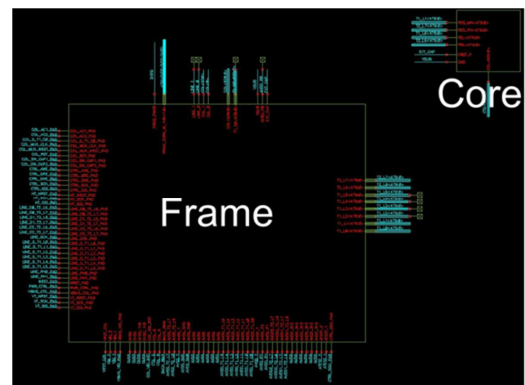
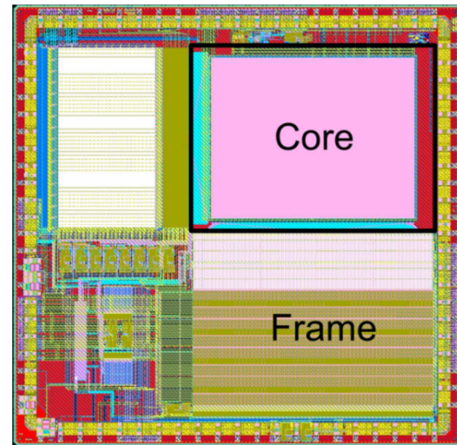
Design and layout is made out of :

- Core (Pixel array and interconnections)
- Frame (Needed driving and readout circuitry)
- Core has a total available area of 3,3 mm (H) x 2,5 mm (V)
- Pixel array area
- Interconnections to frame (for pitch fitting)
- Frame can be black-boxed for LVS purposes (abstract view to be used)

Delivery comprises :

- Frame layout view
- Frame symbol view
- Frame empty schematic view (only pins)
- Frame abstract view
- Pixel integration user's guide

Pixel integration in the frame takes only a few hours



## EVALUATION KIT

Usage of a Cypress FX3 MCU and Xilinx Artix7 FPGA

USB3 for frame-grabbing and EK control

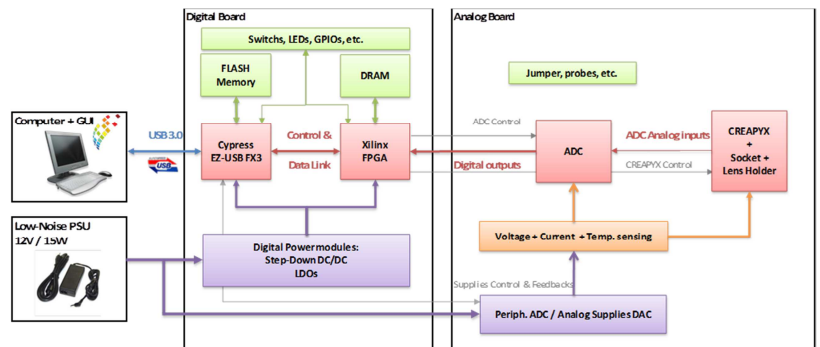
FX3 handles CREAPYX register interface, power supplies and data-link

FPGA handles frame and line sequencing

Dedicated low-noise supplies / analog inputs

Jumper and probes for observability / external supply

Auxiliary voltage/current measurements



Delivery comprises :

- Evaluation kit (packaged)
  - Digital and FSI analog boards (fully assembled and tested)
  - Optional BSI analog board
  - Optical mount with basic lens, tripod
  - Power supply, USB cable
- Software (digital download)
  - Graphical User interface with interface DLL (Maltlab, Labview...)
  - Optional characterization scripts for automation (Matlab only)
- Pixel evaluation user's guide

Evaluation kit is compatible with Creapyx chip in different processes