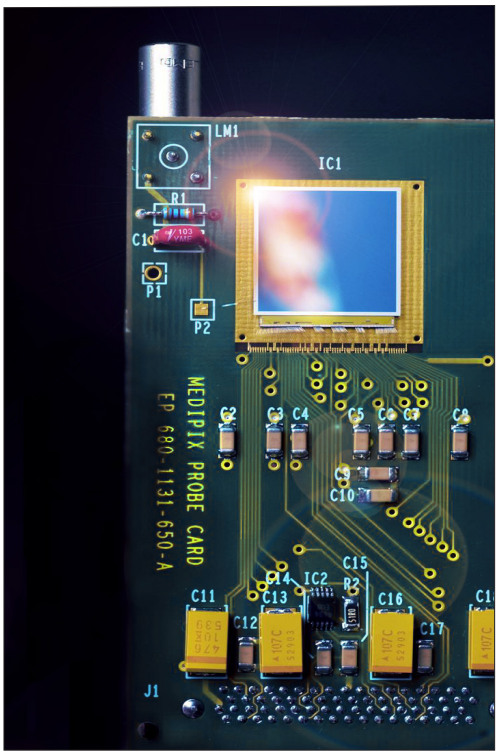
TIMEPIX2



Timepix2 is a programmable, general purpose hybrid pixel detector readout ASIC. The Timepix2 ASIC consists of a matrix of 256x256 pixels with pixel pitch of 55µm, and is applicable to a wide range of applications including X-ray imaging, particle tracking and material analysis.

The Timepix2 pixel can be programmed to operate in one of several modes depending on the application requirement, offering increased complexity compared to the predecessor Timepix ASIC. Readout is frame-based. The arrival time (Time-of-Arrival – ToA) and charge deposit information (Time-over-Threshold – ToT) can be recorded for each hit when used in sequential read/write mode. In continuous read/write mode one can chose between ToT, ToA or event counting. There are a total of 28 bits per pixel which can be allocated depending on the read/write mode chosen and the requirements of the application.

FEATURES

- Pixel size 55µm x 55µm.
- 256 x 256 pixels.
- 28 bits/pixel.
- Simultaneous ToT and ToA.
- Separate ToT and ToA clock frequencies.
- Readout dead-time-free modes.
- Frame-based sequential or continuous read/write modes.
- Digital and analogue pixel masking available per pixel (turn off power consumption in unused pixels).
- Linear front-end gain, possibility to configure for 'logarithmic' gain mode only in positive polarity.
- 3-side buttable.
- Wire bonding pads can facilitate TSV processing.

APPLICATIONS

- X-ray imaging
- Material analysis
- Particle track reconstruction
- Non-destructive testing

AREA OF EXPERTISE

Electronics

TECHNOLOGY READINESS LEVEL

Commercially available

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