

TOFPET 2: a high-performance circuit for PET Time-of-Flight

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TOFPET 2 is a 64 channels readout and digitization chip for radiation detectors using modern SiPMs for Time-of-Flight PET scanners and other applications.

The tape-out of the chip is foreseen in **June 2015**.

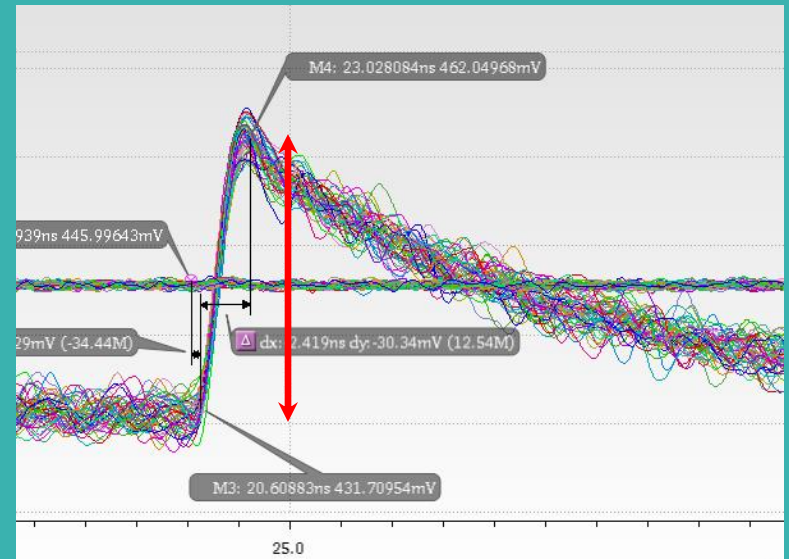


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The TOFPET 2 features:

- Front end based on a low input impedance current-to-voltage amplifier optimized for timing performances;
- Integration branch for linear charge measurement;
- Low power TDC/ADC for digitization of time and charge measurements;
- Back-end with 3.2 Gbit/s output data rate.

Simulation results of time resolution and integrator linearity are shown in the poster.



For a 1 p.e. signal from a SiPM (gain $1.25 \cdot 10^6$) the front end can detect a signal with 74 ps jitter (r.m.s) and SNR of 24 dB.