

TimePix-2

A general purpose HEP Track & Imaging Pixel Chip

Hvdg, Nikhef

RD51, Paris, Oct 14, 2008

HEP instrumentation since 1908:

(charge) signal generator

Amplifier

(shaper)

discriminator

[counter, timer, MCA]



Higher count rates
better (time, position) resolution

Better granularity

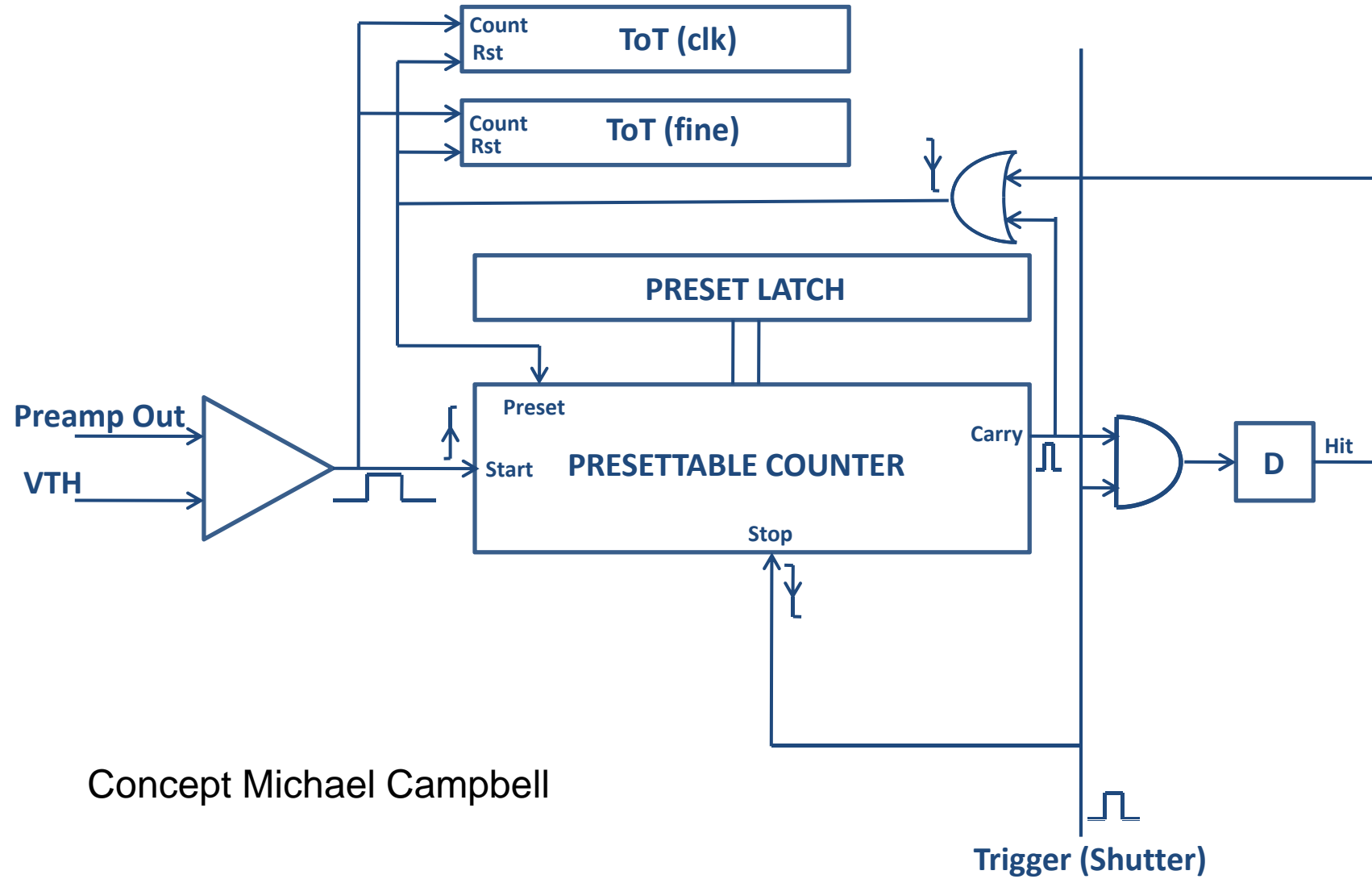
MPGD: each grid hole is a stand-alone detector

Continue this in readout

In pixel:

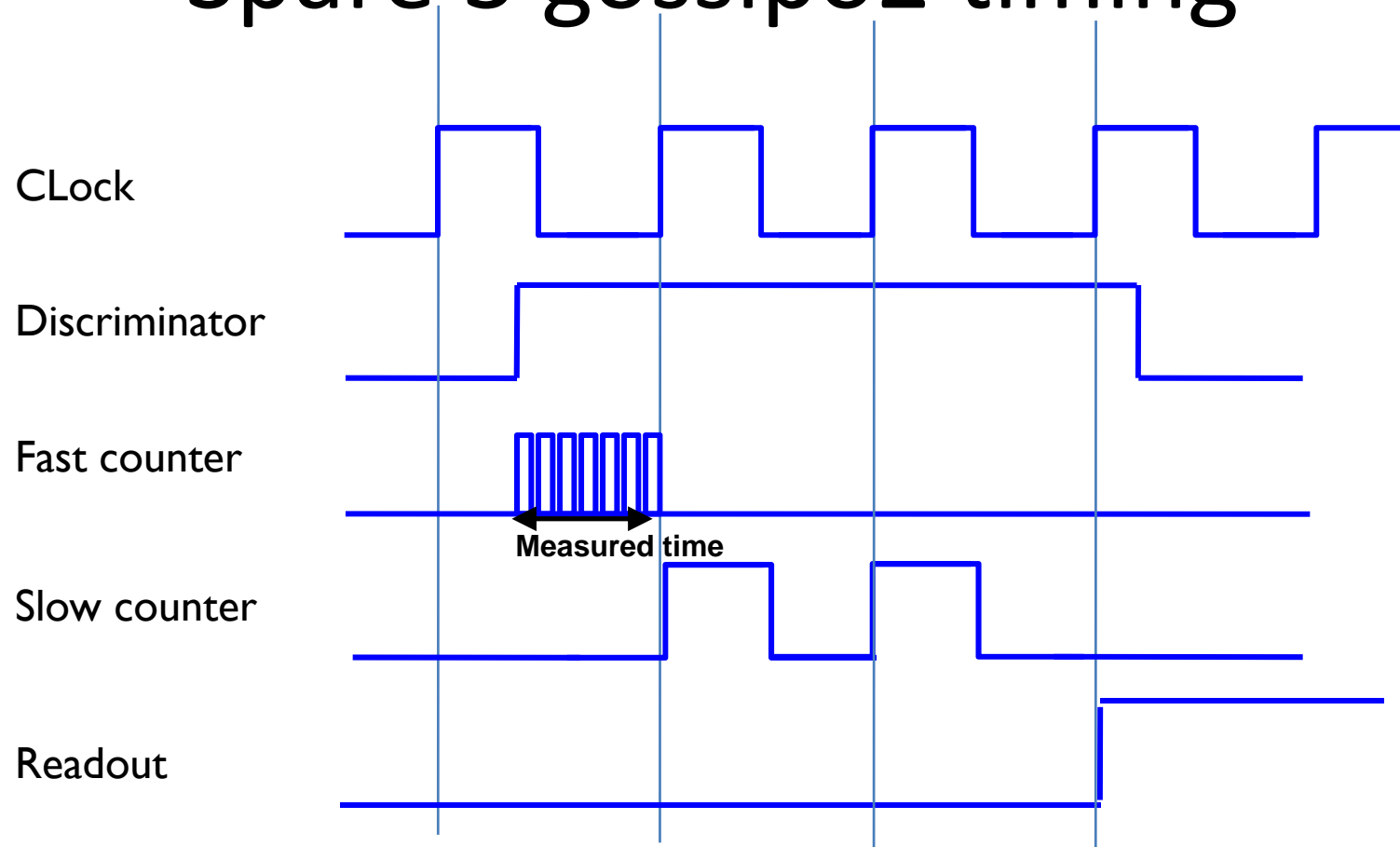
- pixel input pad to get charge signal in
 - preamp: time constant(s), bias current
 - shaper: time constant(s)
 - discriminator: speed, delay, power
 - time measurement, pulse height measurement
 - DAQ: memory per (group of) pixels
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- Approaching to obtain **complete information** from charge signal

Timing and Tracking Pixel Readout Chip (TTPix)



Concept Michael Campbell

Spare 3 gossipo2 timing



ADC per pixel

- Time Over Threshold
- Dual Discriminator

- natural follow-up of Medipix-3 (130 nm tech)
- Which groups are interested in TimePix-2? Form collaboration?
- definition TimePix-2
- task distributions: - multi-project wafer runs 2009
- (input signal) simulations
- evaluation of Medipix-3
- DAQ system & software development