

The VA-TA ASIC(s) – principle:

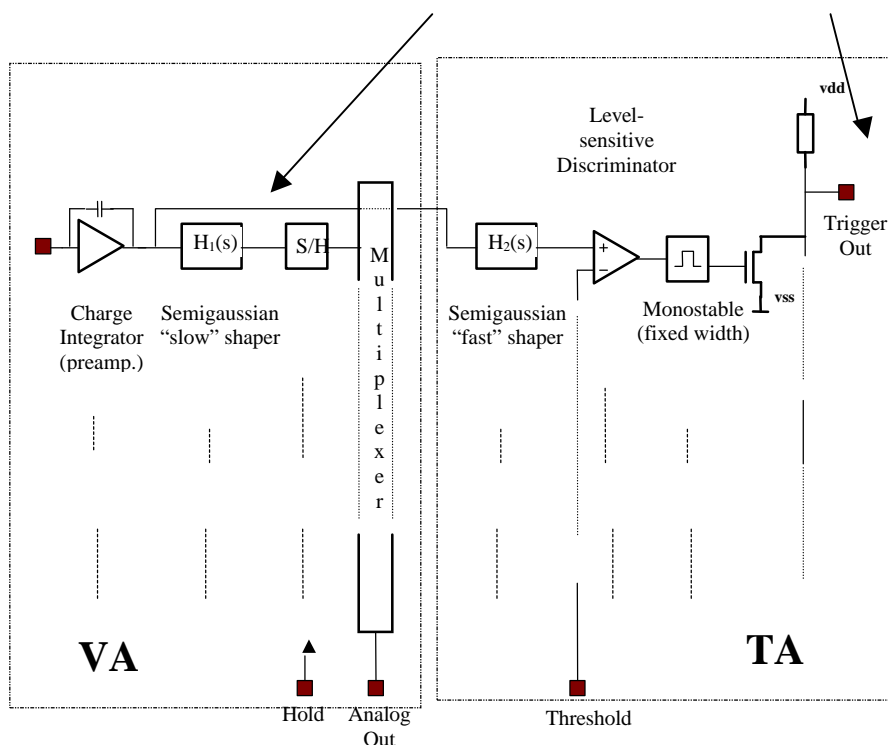
IDE offers a supplement system to the standard VA concept, called TA. The main purpose of this supplement is to provide a (self-) trigger which can be very useful when:

- studying asynchronous data from photons (x-rays, gammas) or non-penetrating charged particles.
- a fast trigger (~50ns) with short duration is required for coincidence correlation between two detectors.
- a data-reduction scheme is desired i.e. the TA supplement will enable you to select full-readout of only VA's which has signals above the set threshold.

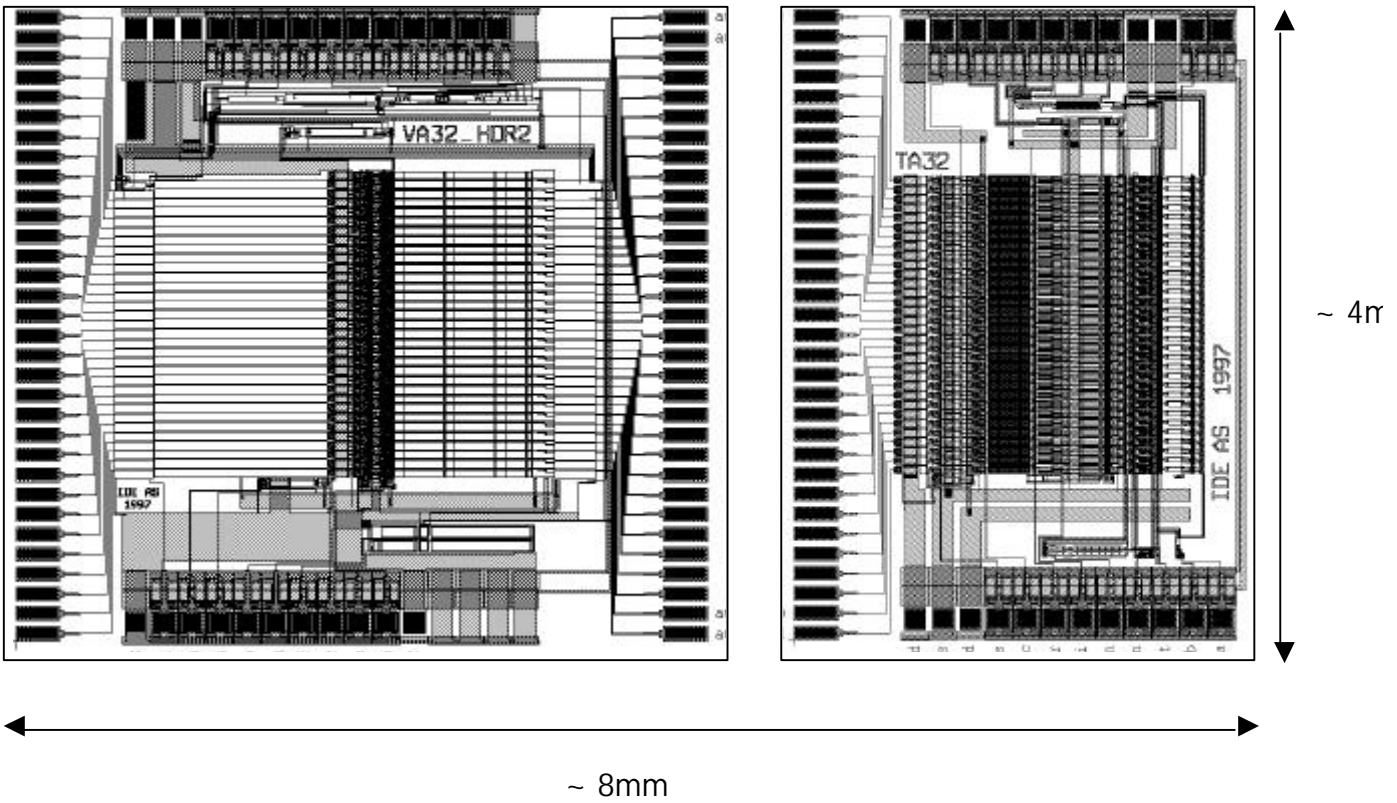
The VA-TA exists as a chip-set of one VA-die and one TA-die and also as single-die with both the VA and the TA function on one chip.

Principle:

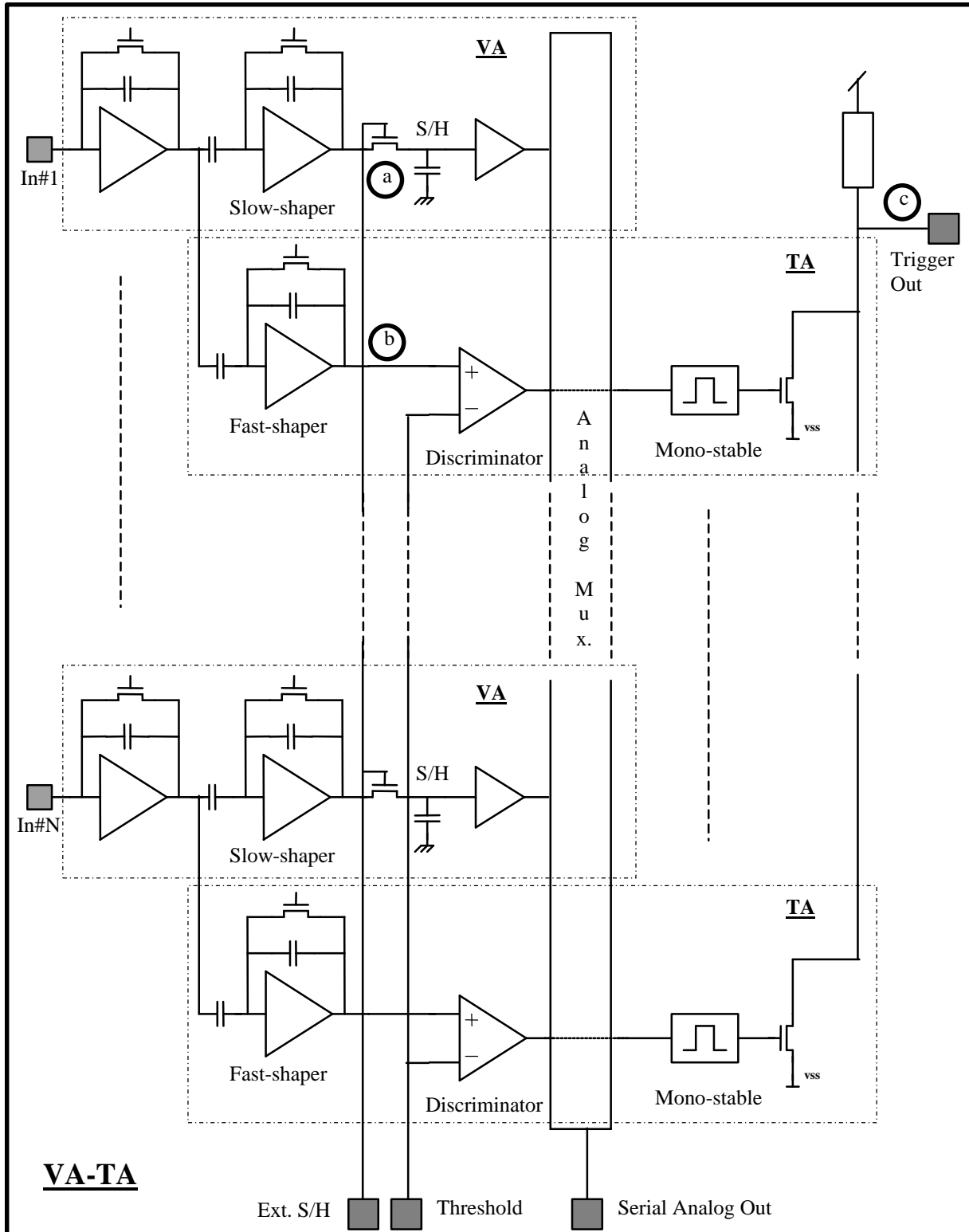
Signals shown on scope-traces (later)



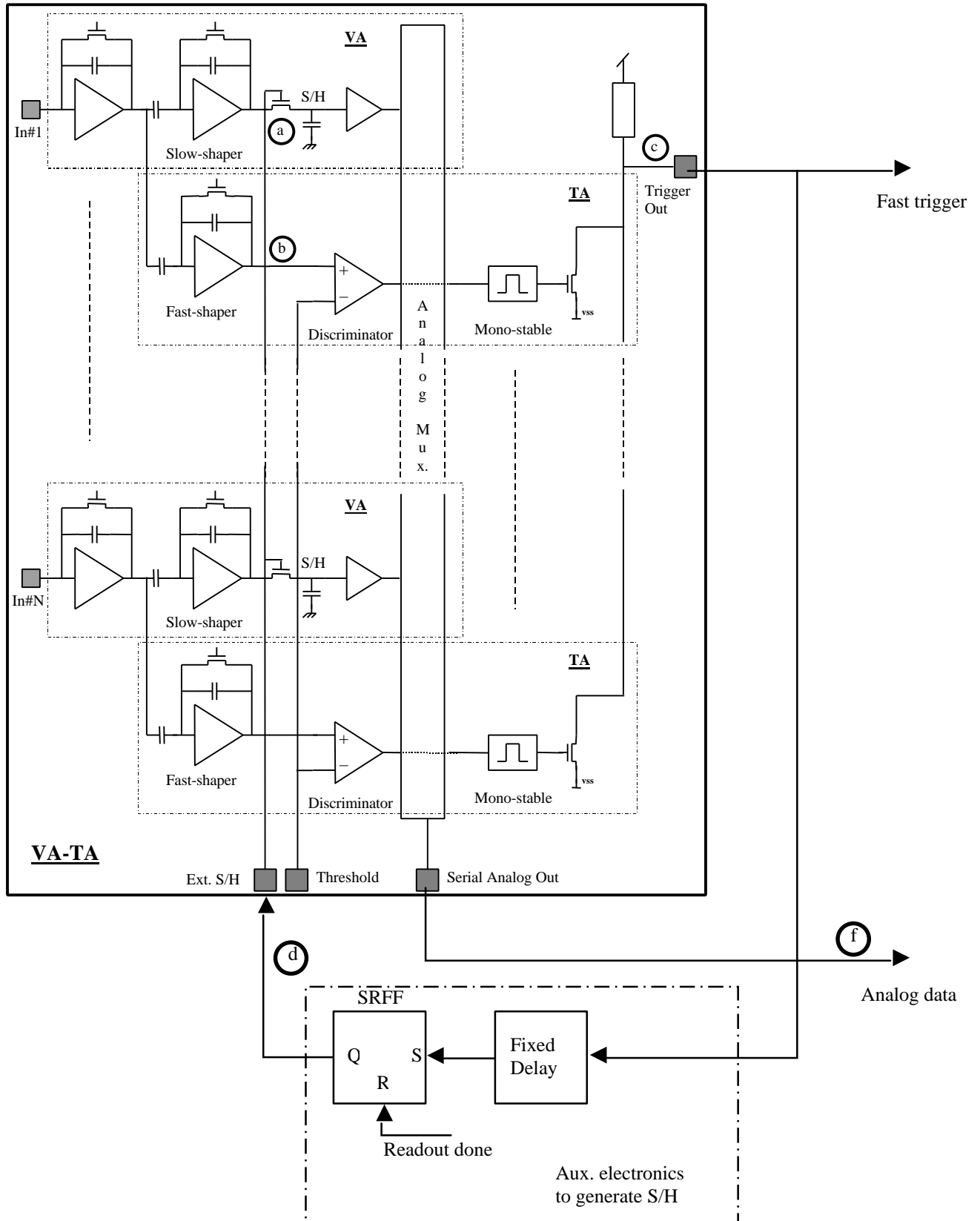
Physical illustration:



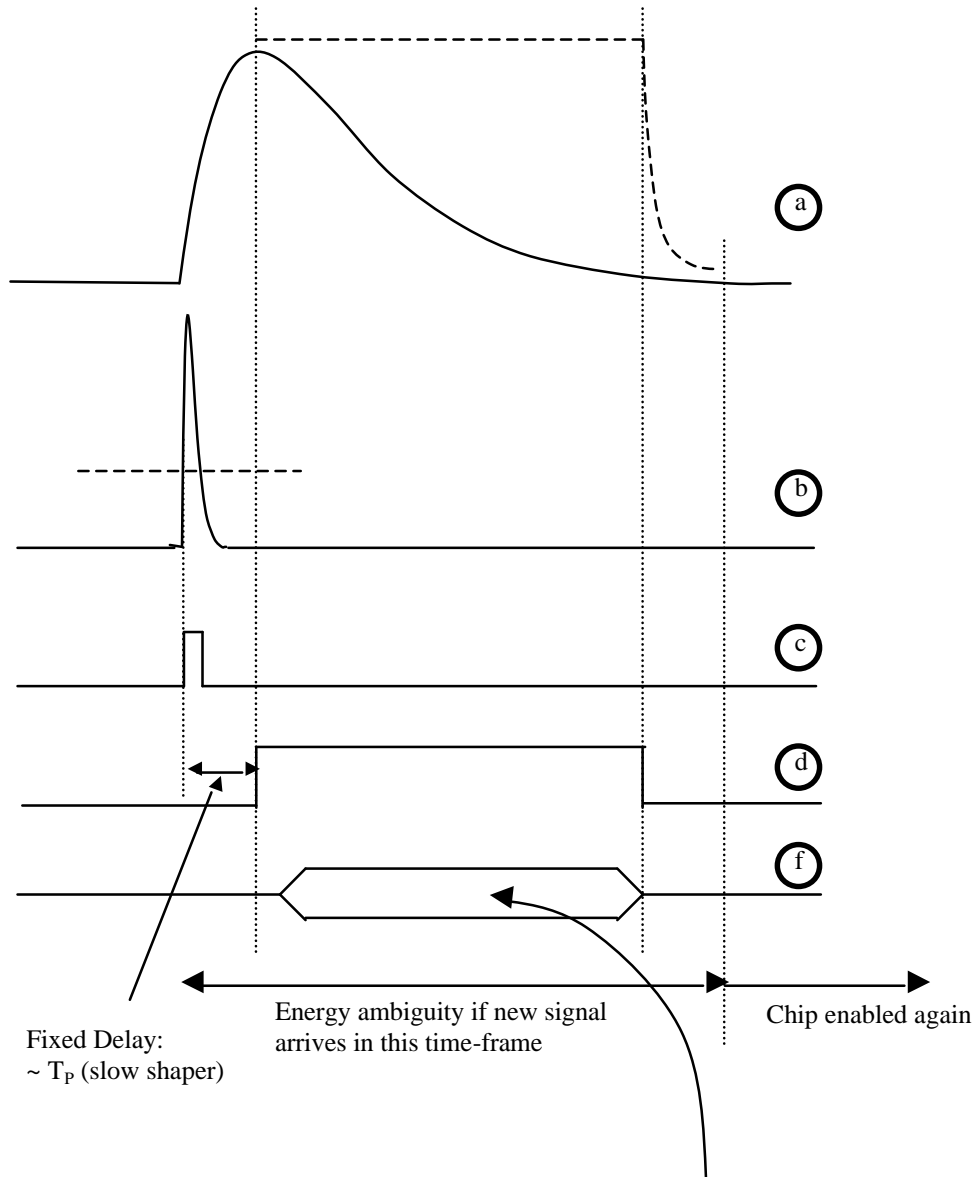
More Detailed Diagram:



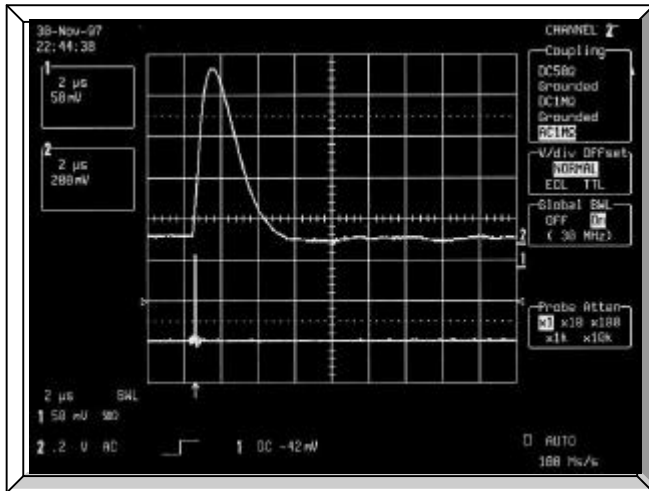
Basic principle of VA-TA showing how a precise S/H of the slow-shaper output easily can be generated from the fast trigger:



Signal, trigger and data sequences in the VA-TA:



All channels sampled energy
values output in a series stream.
Signals in more channel than one
should only occur if it happens
simultaneously.



Some Measurements:

Upper Trace: VA output
Lower Trace: TA trigger

