

# Charge Sharing Readout

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## Splitting Adapter for APVs

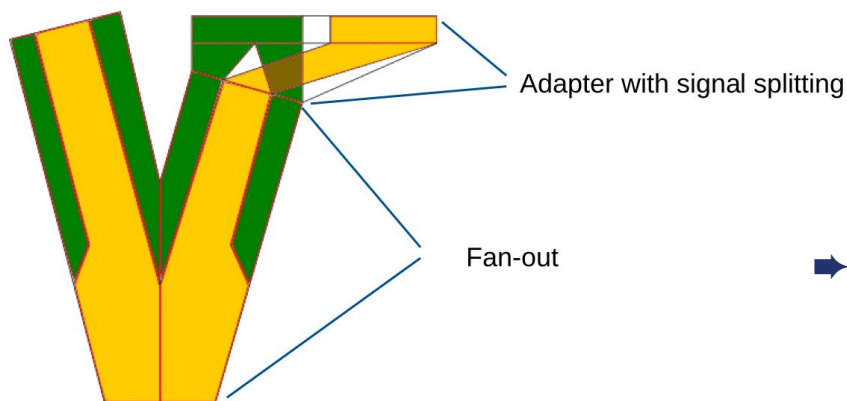
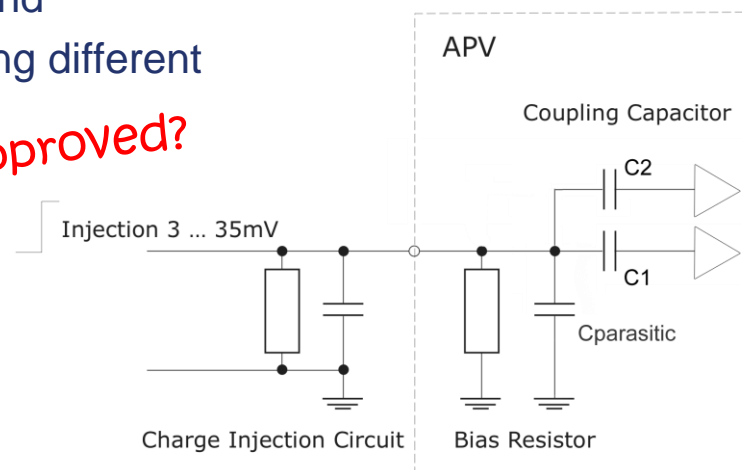
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## Motivation

- extend the sensitivity range of the APV frontend
- share charge between two APV channels using different coupling capacitors

(C1 standard: 100pF, C2 modified: 10pF) **approved?**

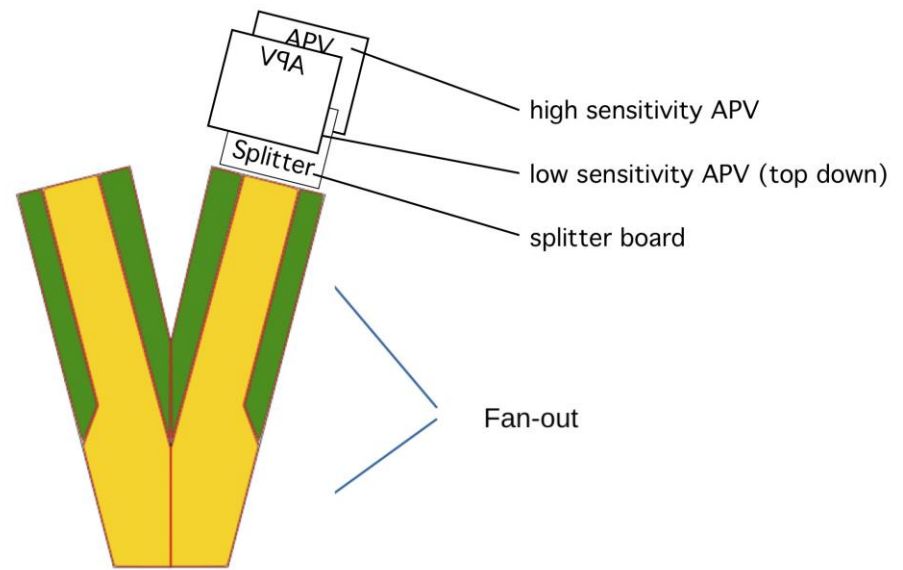
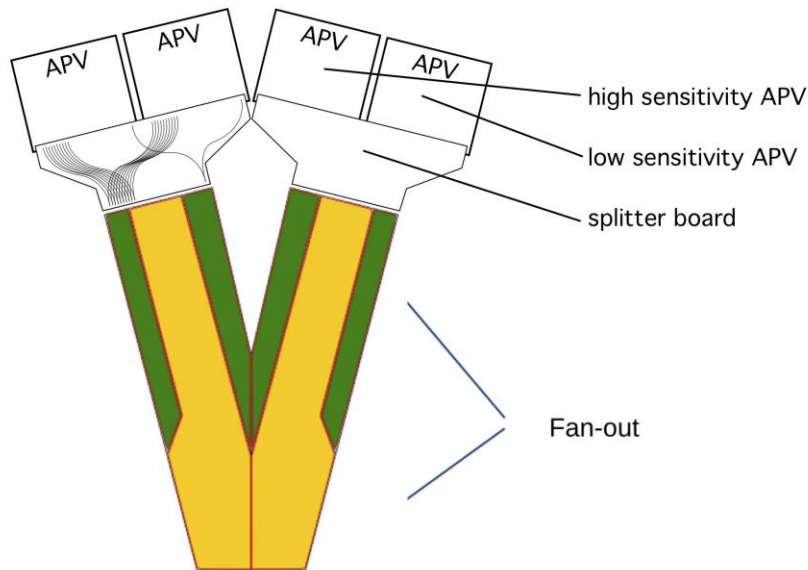
- design new fanout or an adapter board with matching connectors



➡ ~~modify every 2<sup>nd</sup> channel on APV!~~

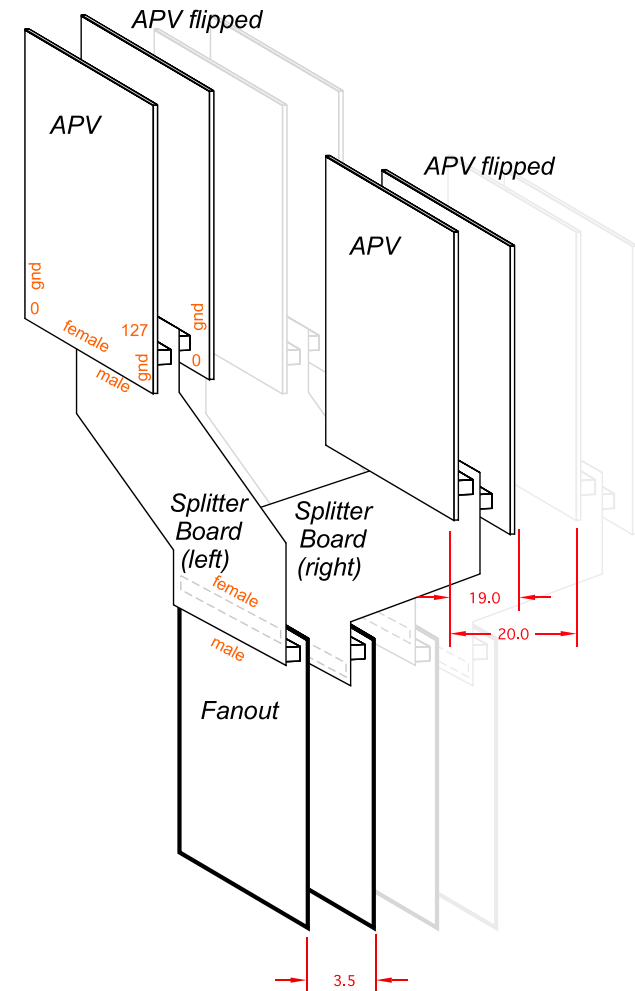
## Basic Concepts

- modify a whole APV board (all channels) ✓
- neighbour APVs or
- stack them (one flipped, **preferred!**) ➡ less stub line length and easier routing



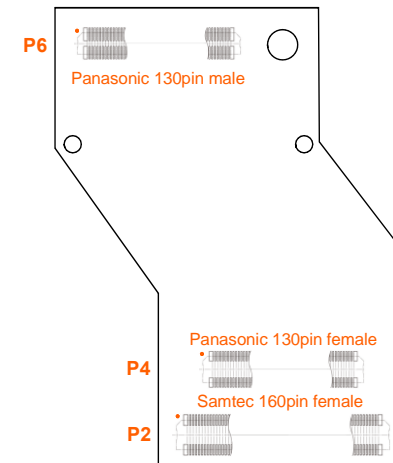
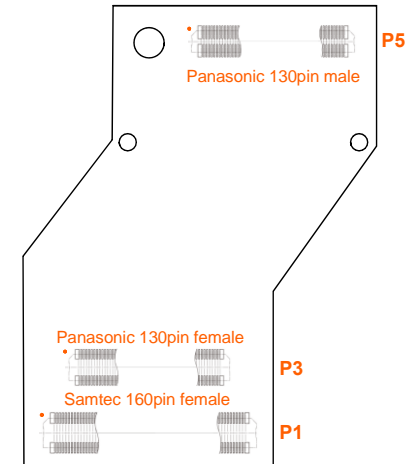
## Geometrical constraints (1)

- consecutive sensor planes: just 3.5mm!
- existing fanout (Panasonic connector): ~9mm
- two flipped APVs: 19mm
- use bulged adapter to place APVs  
of two consecutive sensor planes side by side  
instead of stacked in a series  
➡ no more space needed than now



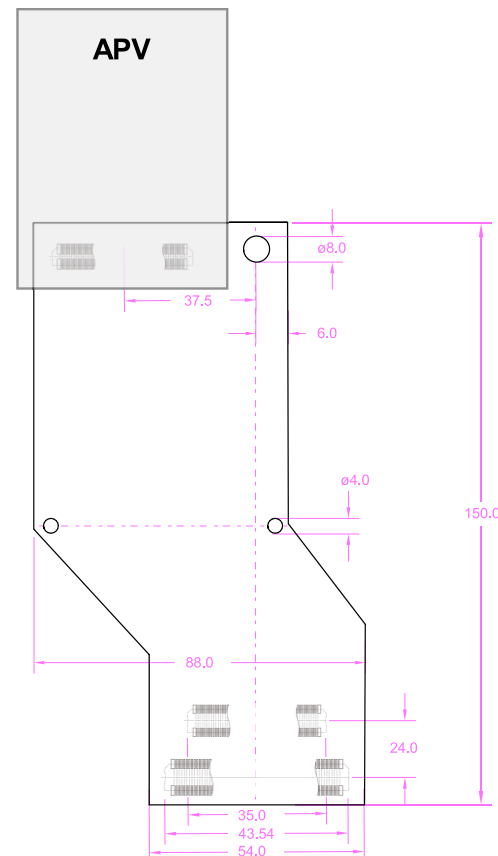
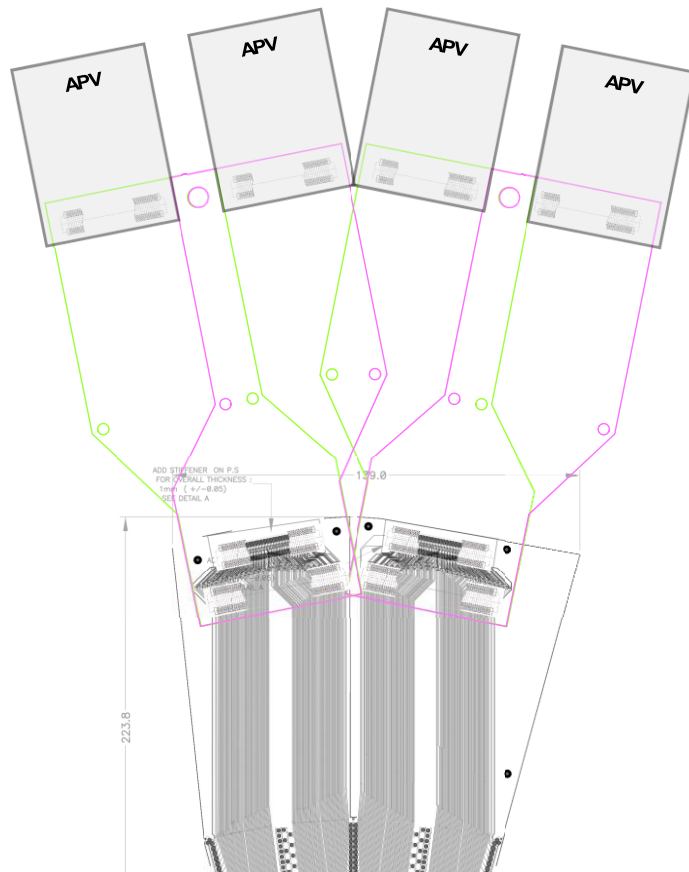
## Versatility considerations

- place connector footprints on both sides to allow for a single (reversible) design
- which side to solder is a matter of later decision
- place Panasonic as well as Samtec footprints on fanout bound end (Samtec has less height, therefore at the very end)
- place a hole for a carrying rod



## Geometrical constraints (2)

- Given fanout angle results in a required minimum adapter length (150mm) ➡ too much?



## Status

- APVs

20 pcs. to modify arrived in Zeuthen

will be put into the workshop next week ➡ modifications still possible! (**10pF?**)

- Twin Adapter

pcb design just started ➡ modifications still possible!

manufacturing and soldering due

Panasonic connectors available @ CERN store

➡ have to be ordered and sent to Zeuthen!

Samtec connectors: few free samples delivered

**Thank you for your  
attention!**

*Looking forward for a fruitful discussion.*