LAD
Cable and Trigger Diagrams
v0.1

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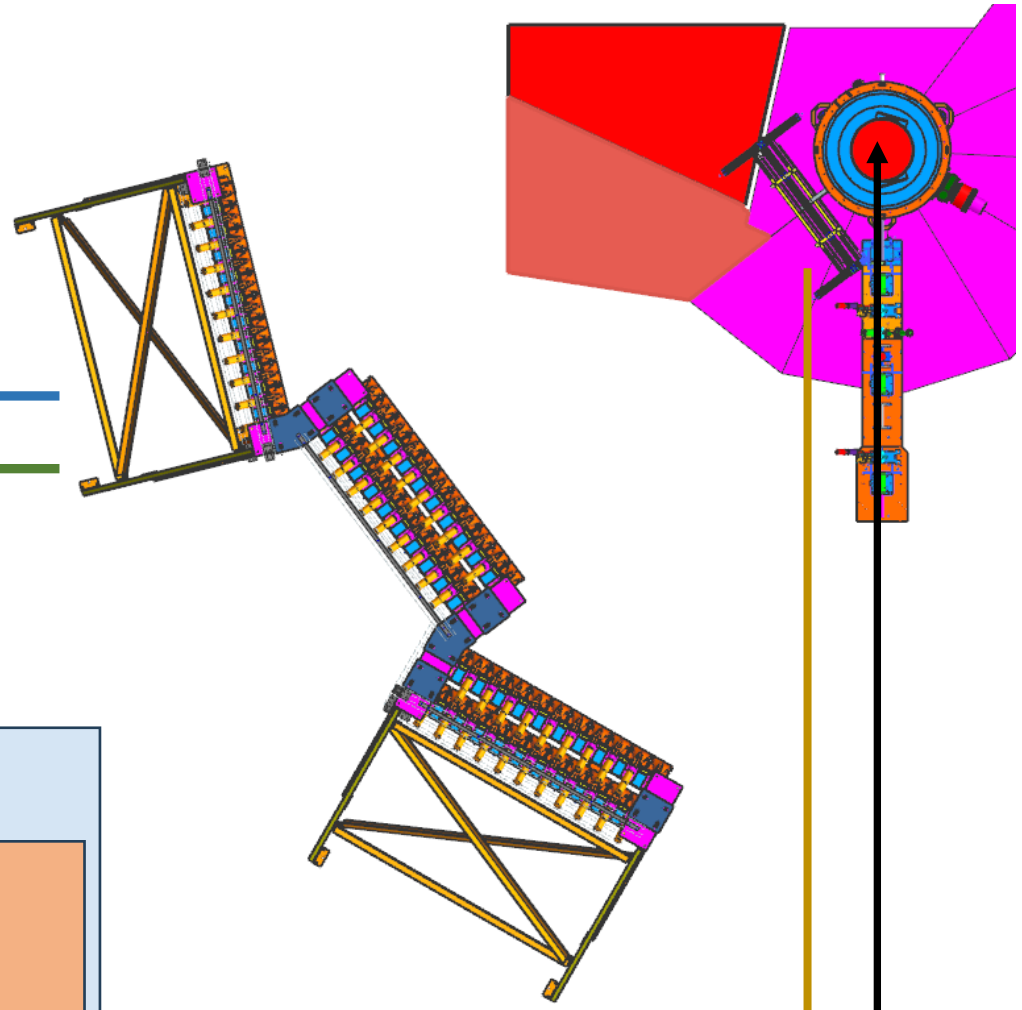
Hall Setup



FADC Signal

TDC/Disc Signal

Bunker behind LAD

LAD
HV crate

LAD
TDC/Disc crate

GEM
HV crate

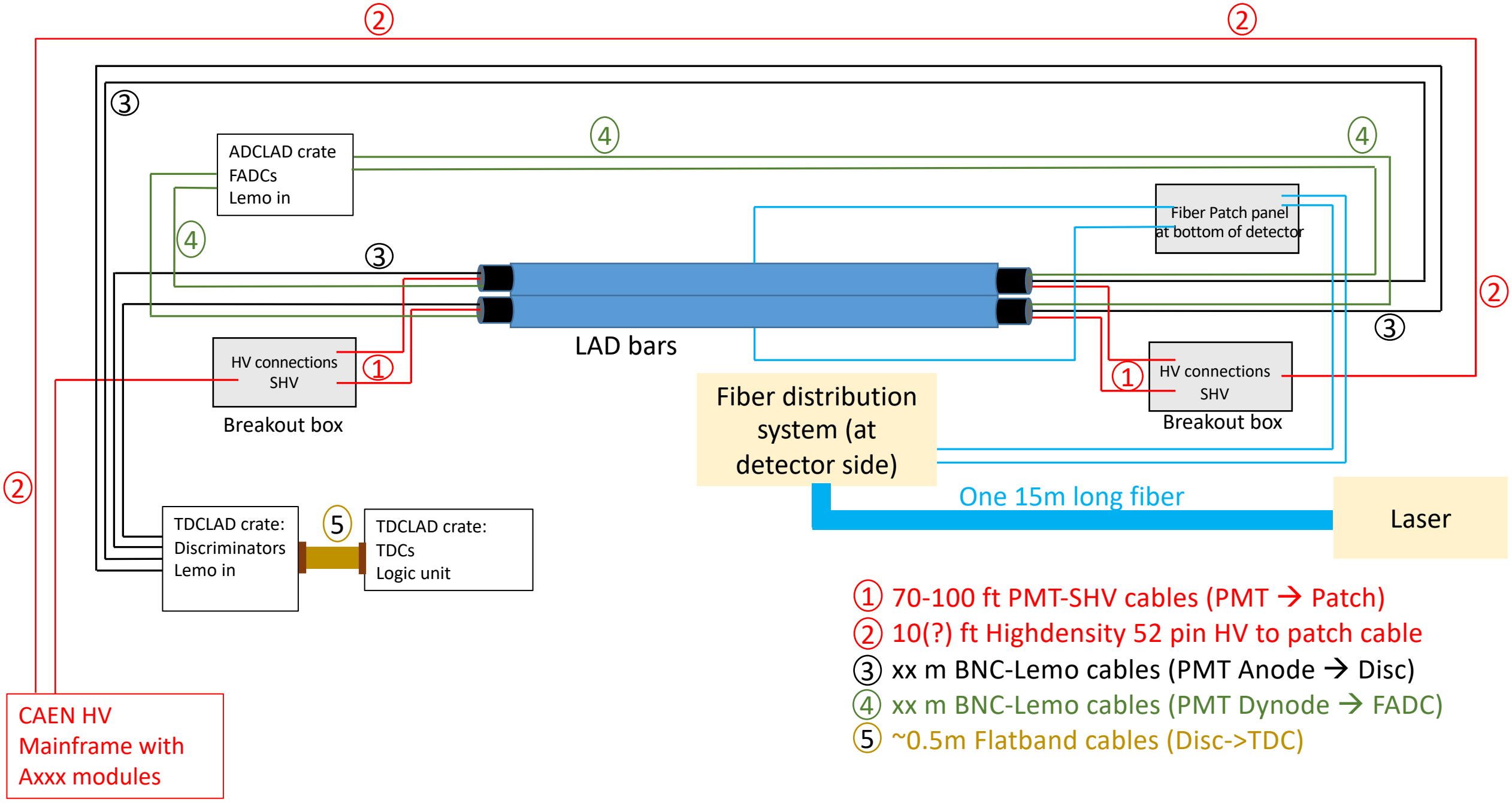
LAD
Laser

LAD
ADC crate

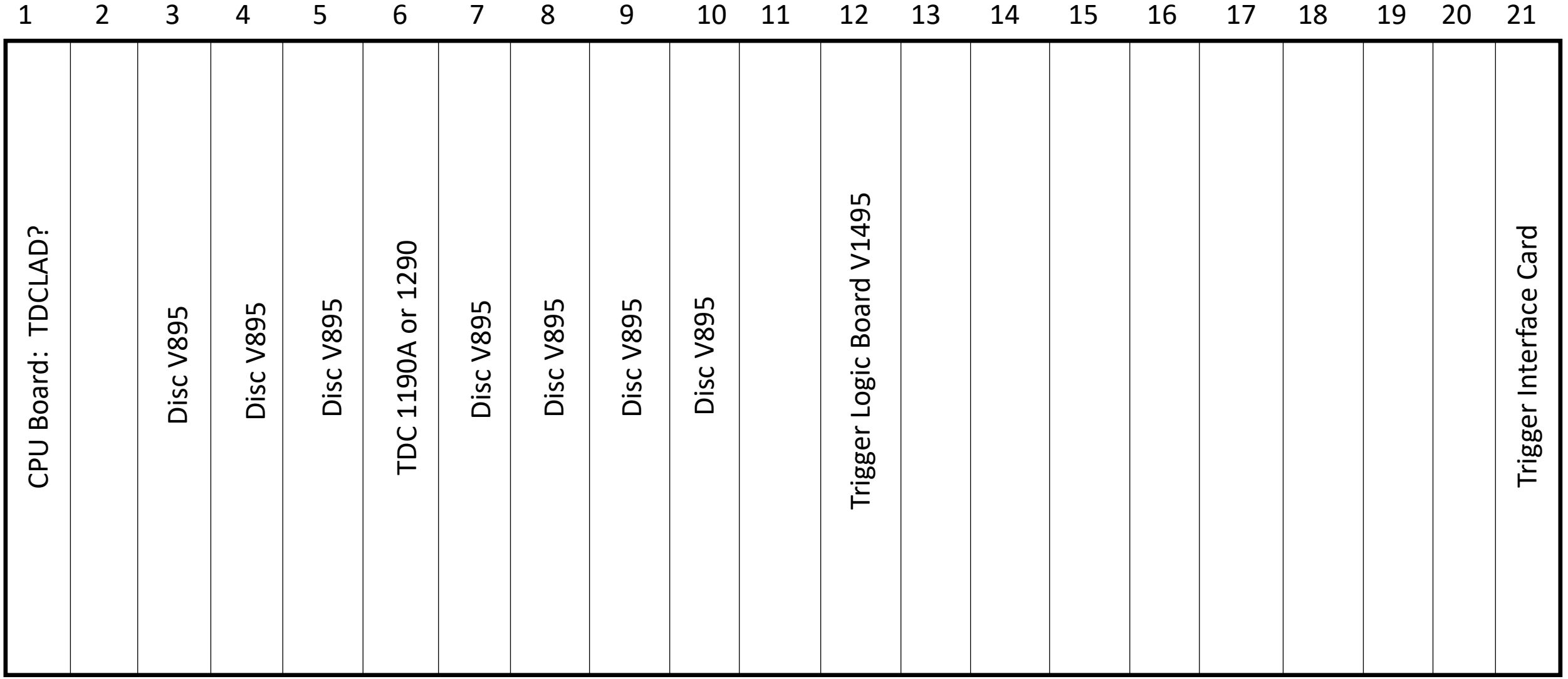
GEM
DAQ crate

APV Signal

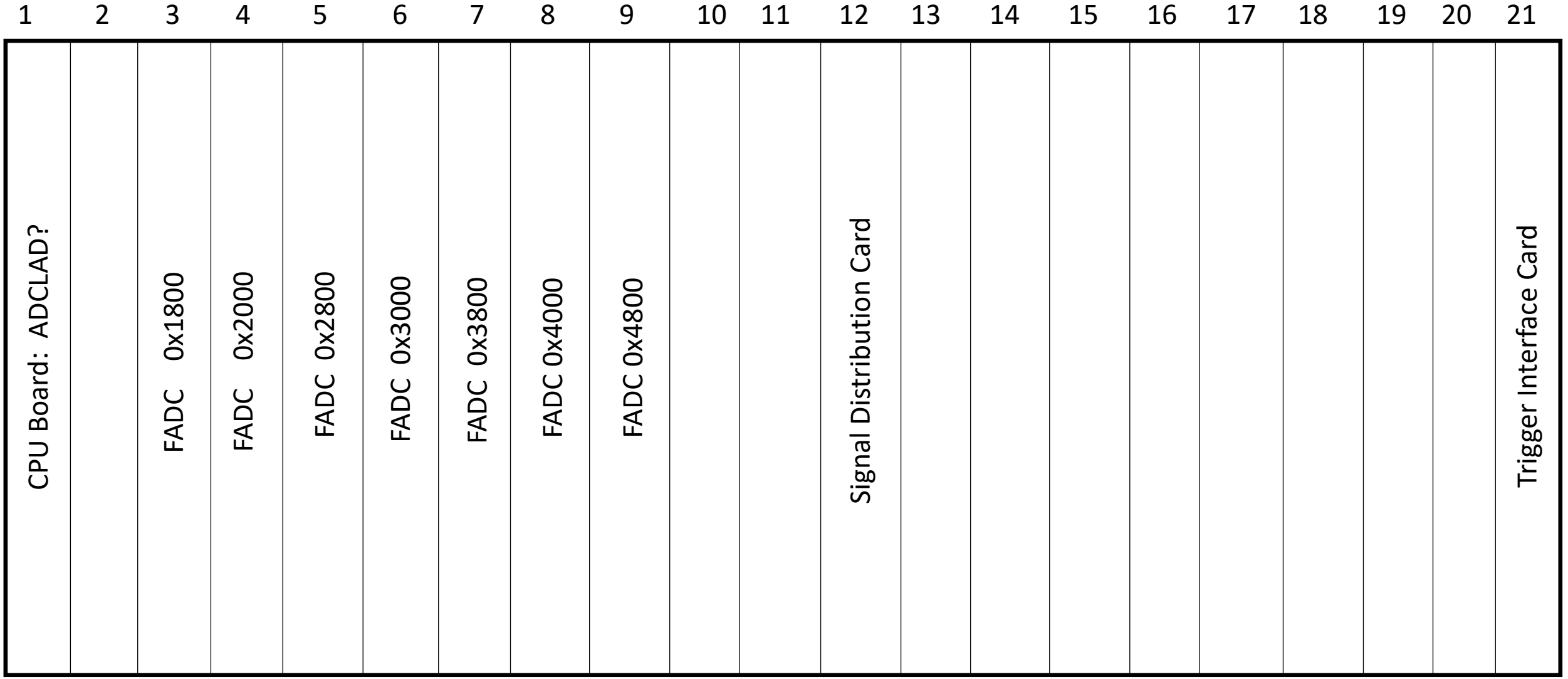
beam


ADCLAD crate
FADCs
Lemo in
Fiber Patch panel
at bottom of detector
HV connections
SHV
Breakout box
LAD bars
HV connections
SHV
Breakout box
Fiber distribution system (at detector side)
One 15m long fiber
Laser
TDCLAD crate:
Discriminators
Lemo in
TDCLAD crate:
TDCs
Logic unit
CAEN HV
Mainframe with
Axxx modules
① 70-100 ft PMT-SHV cables (PMT → Patch)
② 10(?) ft Highdensity 52 pin HV to patch cable
③ xx m BNC-Lemo cables (PMT Anode → Disc)
④ xx m BNC-Lemo cables (PMT Dynode → FADC)
⑤ ~0.5m Flatband cables (Disc->TDC)

LAD TDC/Disc crate: Crate Number xx

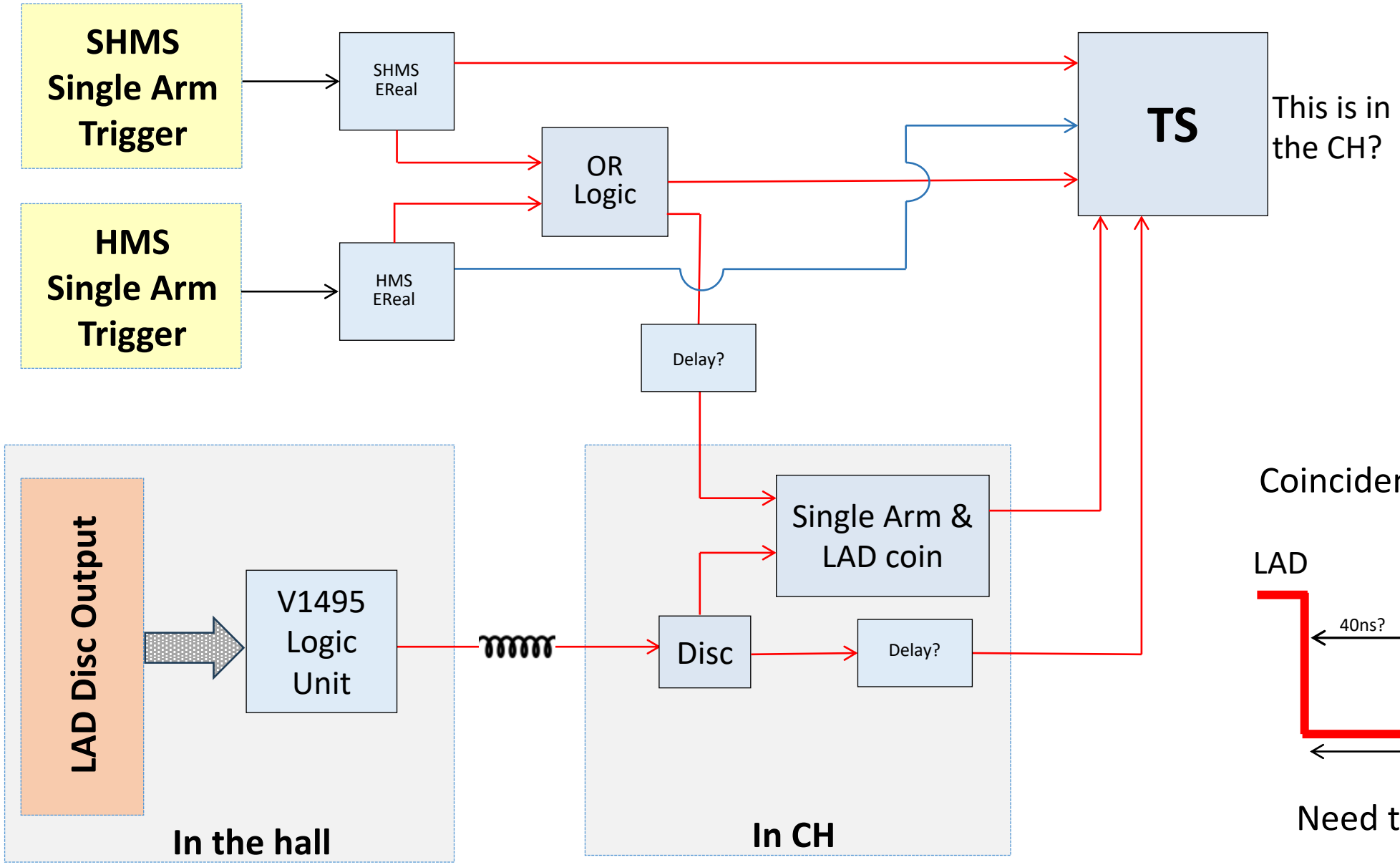


LAD FADC crate: Crate Number xx

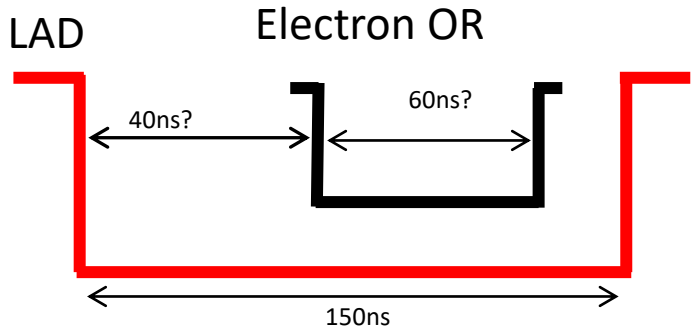


1V Jumper all FADCs probably (maybe 0.5V

Trigger Setup for coincidence and singe arm triggers



Coincidence Timing at logic unit

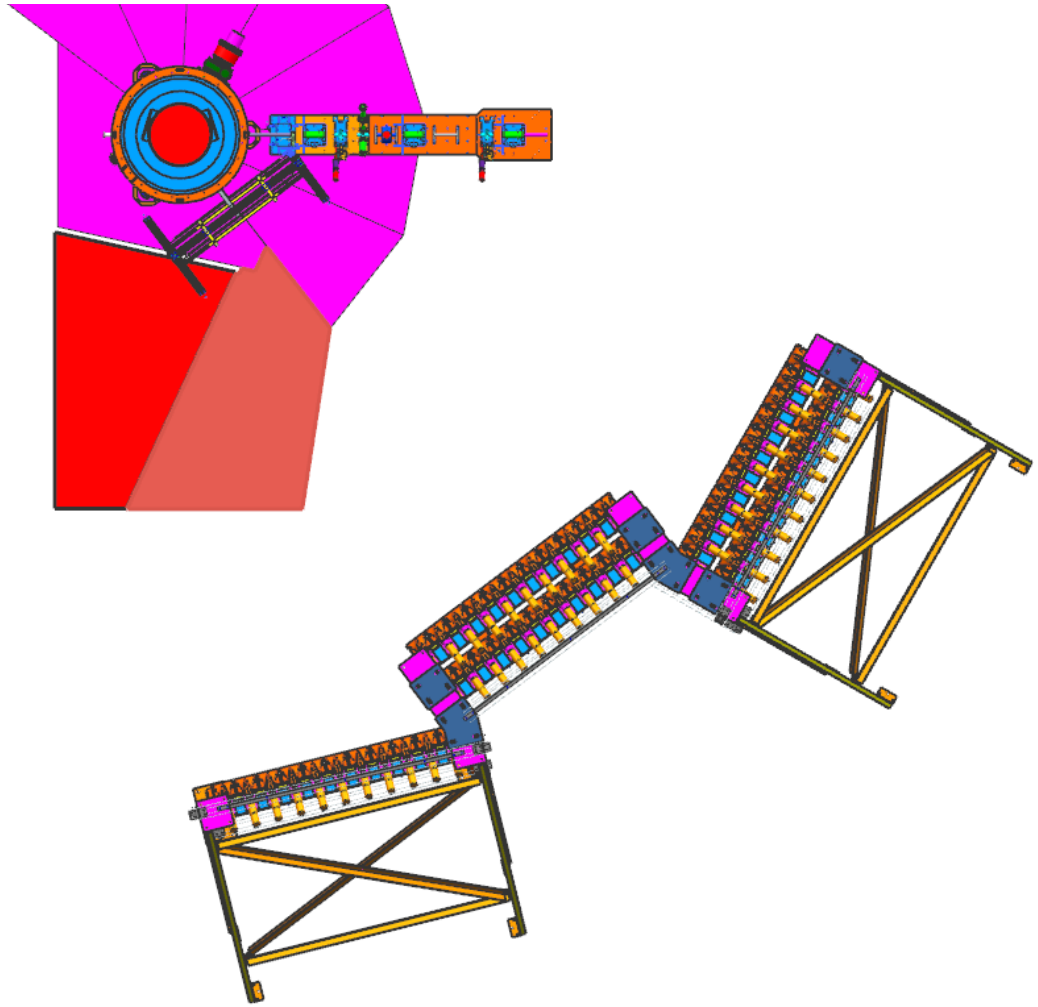


Need to finalize numbers

Trigger

- Main trigger: OR from both electron single arm triggers
- Supplemental trigger
  - LAD single arm for commissioning, detector checkout
  - Coincidence OR+LAD → might be necessary for absolute timing calibration, diagnostics during experiment if signal is in TDC/Scaler (PS = -1)

- Logic signal from LAD needs to go to counting house to feed TS and coincidence
- Questions:
  - Set timings with EDTM for everything?
  - Currently, coincidence is timed on electron OR. Is that reasonable?
  - What are retiming concerns? How does this work with the feedback of the trigger signals into ADCs?



LAD Labeling (to be finalized)

- Four digit numbers for each bar
  - First Number = Wall (0,1,2)
  - Second Number = Layer (0,1)
  - Third and Fouth number = Bar in layer (0-10)

- For every PMT the label is extended by U/T and D/B corresponding to top or bottom PMT

Label = W L XX U/T D/B