

# MIPP Ckov (aka 690 Ckov) cabling+patch panels

- Categories of signals
  - High voltage (2kV, <1mAmp per pmt)
  - Low voltage (-5.2V, 0.12Amp per pmt)
  - Threshold (Adjustable 0-10V, ~no current)
  - Analog output
  - Digital+ output
  - Digital- output (D+ and D- combine to make a differential ECL signal).

Need to make or reuse existing cabling and patch panels for these.

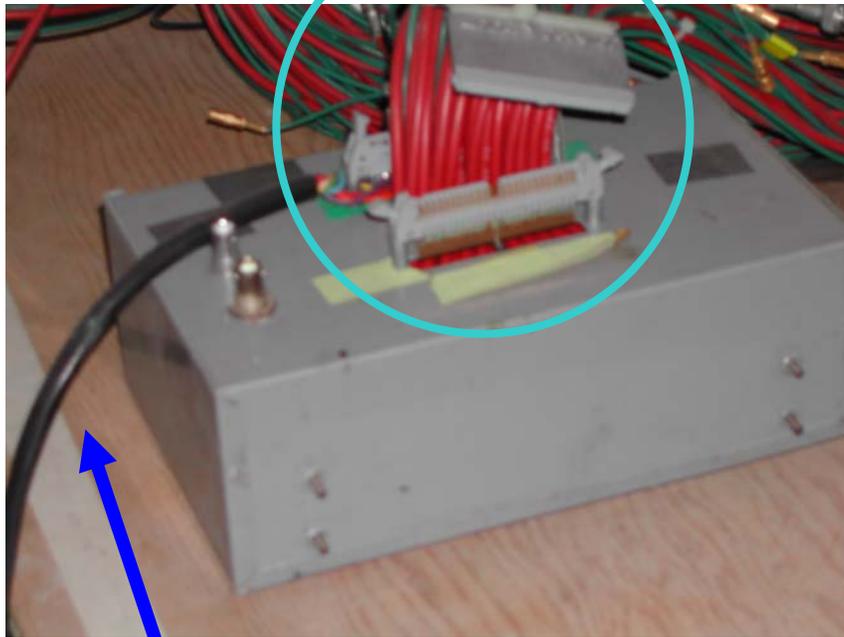
Note: All (non-HV) signals to/from pmt bases are with subminex connectors

# High voltage

- Existing hardware:
  - 1 channel each for top and bottom mirror plane. Separated in HV/LV distribution box.
  - Pigtail cables exist
- What we want to do:
  - LeCroy HV system implies 1 channel per pmt
  - So, need new patch panel for long run cables interface to short pigtails.
    - Need new pigtails, or could splice existing and attach second HV connector.
    - Found 2 patch panels in MC8
- What we need
  - Long (~80foot) HV cables and maybe pigtail HV cables

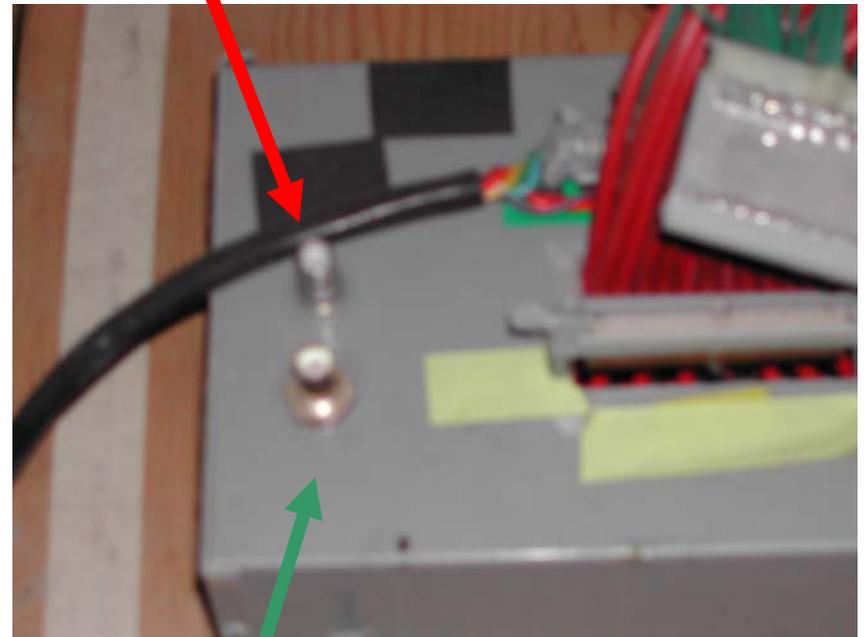
# Existing HV/LV distribution boxes

Outputs to pmts



LV in

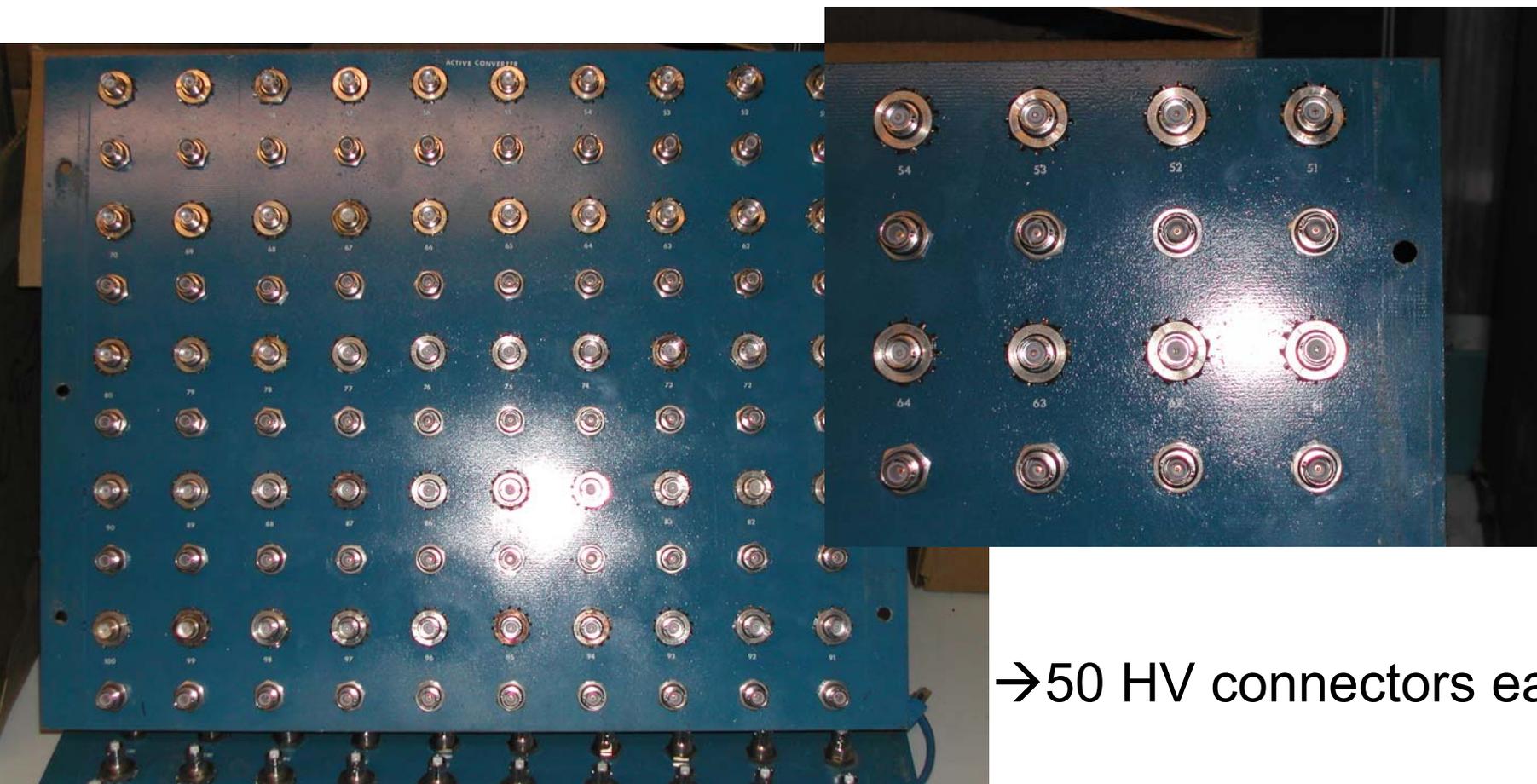
HV In



Threshold in

# Candidate HV patch panel (have 2)

Zoom in: Every other row is HV or BNC connectors



→50 HV connectors each

# Low voltage

- Previously: 1 channel for each top and bottom mirror planes. Separated in HV/LV distribution box.
- What we want:
  - The same.
- Already done:
  - Have 'new' candidate power supply from MC8. Leon's tech will splice output into two lines and add ~9-10 Amp fuses on each. (10A is magic safety number)
- Needs:
  - Long run wires (no problem...)

# “New” LV supply candidate

Have (=Leon has) 3 spares in MC8  
Needs outside connections + fuses



# Threshold voltage

- Previously used:
  - 1 threshold for all pmts
  - Distributed to pmts in HV/LV distribution boxes
- What we want:
  - The same
- Needs:
  - DAC channel in CAMAC crate (does a DAC already exist with a space channel?)
    - Only one CAMAC DAC on prep's web page:
      - BiRa 5408 8 channel, 12 bit
  - Long run cable (no problem)

# Analog signal

- Previously
  - Subminex cable patched to BNC. One patch panel for each top and bottom mirror planes.
  - 150 foot run of RG8 cable to CAMAC crate (910 at least)
- What we want
  - RG58 instead of RG8 with shorter run
    - 60 foot cables needed in Peter's current layout (still in flux)
    - Space savings of 4x
    - Attenuation length 2x -4x smaller depending on source of info.

# Current patch panel (1 of 2)



Mass of labeled pig tails for analog and digital signals.

LV (I think)

Front panel

Analog



Digital

# Analog signals (II)

- Already have
  - Use existing patch panels and pigtails
  - 120 60 foot RG58 cables (in counting house). Should be ok barring big changes. Next scroungable size is quite a bit larger
- Needed
  - Sanity check that RG58 is ok.
  - Interface to CAMAC ADCs
  - (How do we start the ADCs? Do we need a delay?)

# Digital outputs: D+ and D-

- Previously
  - Only one (or 0) used
  - Patch panels exist (same one as for analog signals)
    - But only for one digital output
- What we want:
  - To use both D+ and D- to make differential ecl signal
  - Carry on ribbon cable to CAMAC

# Digital outputs (II)

- Needed:
  - Coax to ribbon converters (6+spares)
    - PC board + solder coax pigtails
  - Additional subminex connectors
    - LabG on 690 hodascope (need to check length and #)
    - Order more: Leon looking to see if they exist
  - 6 + spares long ribbon cables (70 feet) (no problem)
  - Ribbon too loosey?
    - Presumably not if full differential ECL is present