

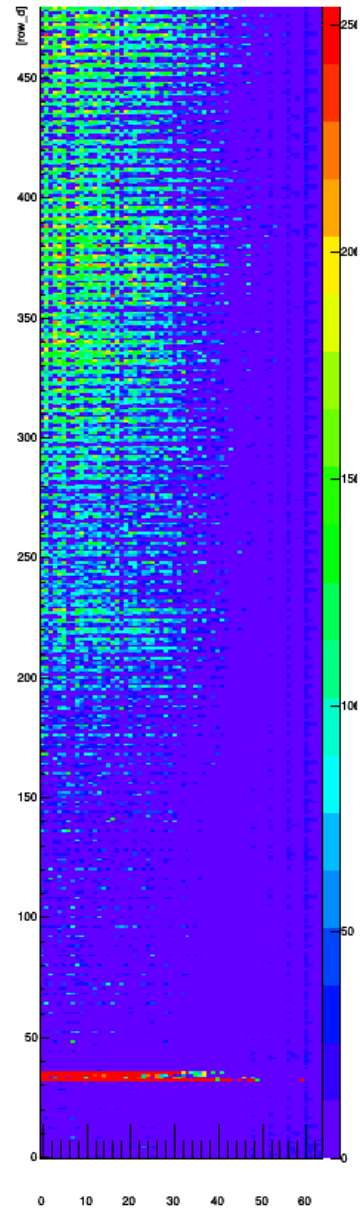
Hybrid 6 Testing

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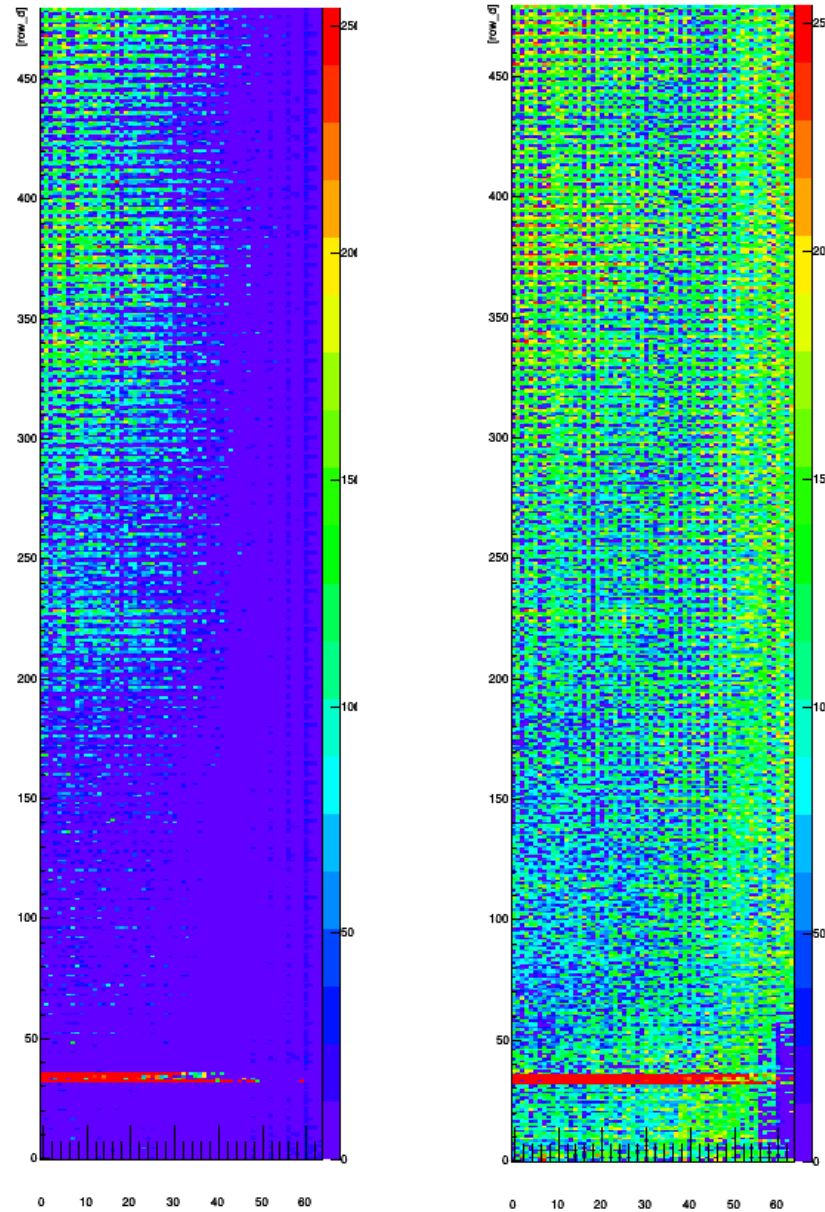


- **DAC implementation ready**
- **New Pedestal calculation ready**
- **Problem solving on Hybrid 6 and DHH**
- **Voltage Scans**

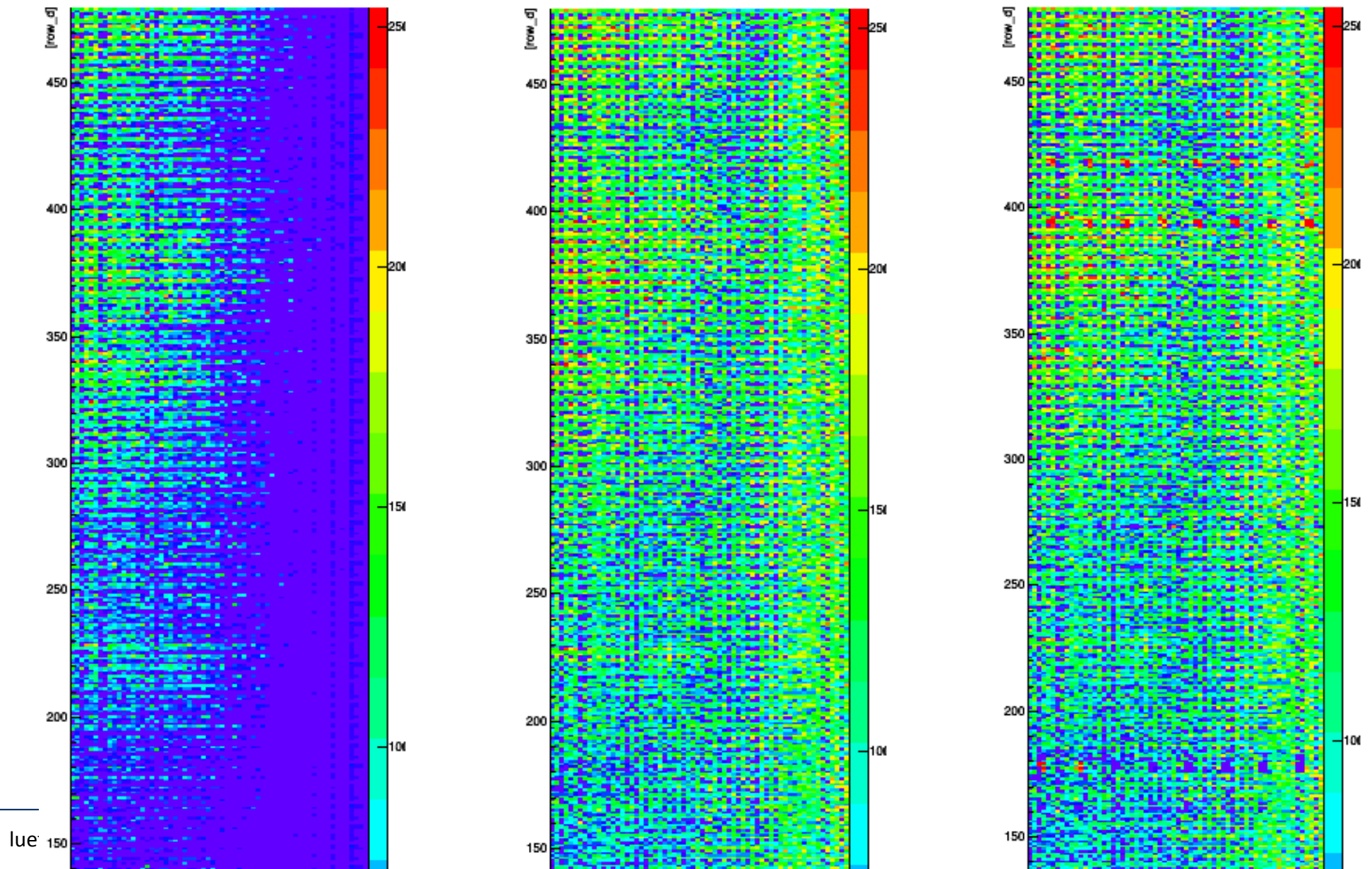
- Design Issues in DHP02:
 - Steering only works in ACQUISITION mode (not in AQUISITON TO MEM)
 - Data acquisition in DHP stops synchronously
 - 2 Bit DAC output from DHP stops **asynchronously**
 - Last written DAC Data stays on output line when DAC output is switched off



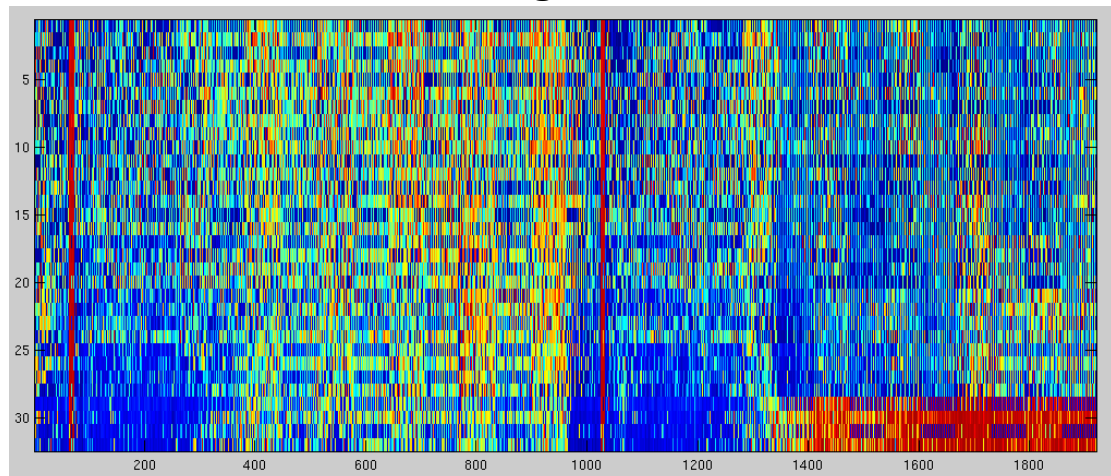
Large PXD6 on
test beam



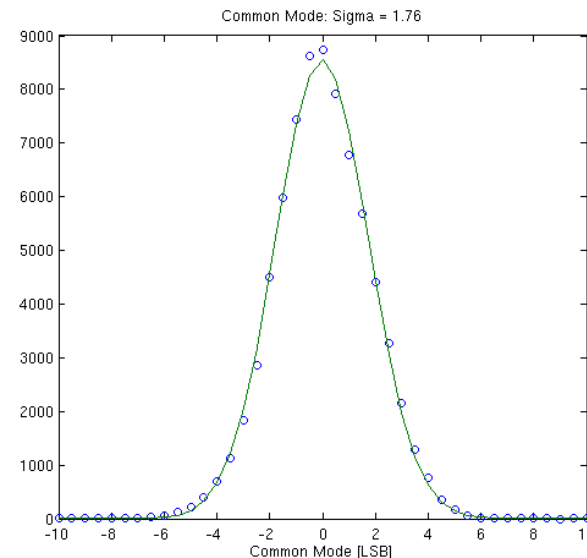
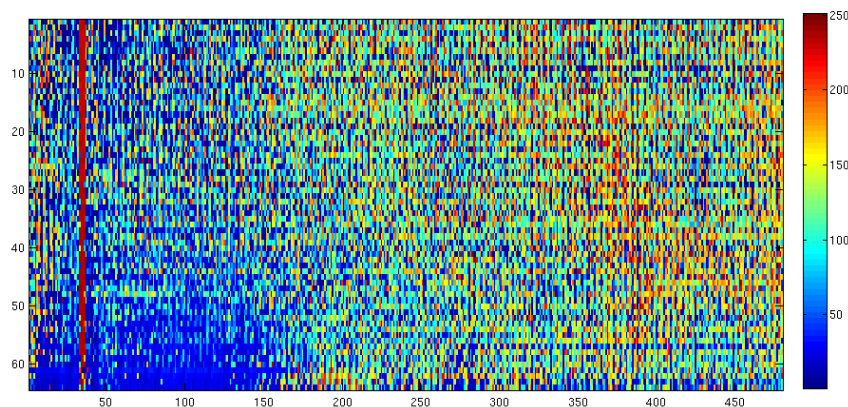
Offset DACs after a few frames



- Design Issues in DHP02:
 - Steering only works in ACQUISITION mode (not in AQUISITON TO MEM)
 - Data acquisition in DHP stops synchronously
 - 2 Bit DAC output from DHP stops **asynchronously**
 - Last written DAC Data stays on output line when DAC output is switched off
- DAC Values get overwritten when going from ACQUISITION mode into IDLE and back.
 - Solution: Reload Offset DAC data before taking raw data frame: Slow
- DAC Values get stuck at some point in the readout:
 - Solution: Clever Software which finds out good frames



- Why is it needed?
 - Part of the Offset Data memory gets overwritten when taking raw data frame
 - Not all raw data frames are valid due to asynchronous stop of Offset output
- Idea: Take raw data in zero suppressed mode
 - Possible, if pedestal subtraction and common mode correction is switched of.
 - Buffer Depth of first FIFO: 16
 - Lost Data if more than 4 Gates are active at a time.
 - Possible solution: Cut matrix into pieces and take separate pedestals for each
 - Used solution: Trigger random parts of the matrix and reconstruct full pedestals from the data



- Setup TTI power supplies
- Wrote new control software (can use TTI, HAMEG and TOELNER supplies at the same time, TCP communication and steering possible)
- Strange results: Voltages not stable, current consumption is changing/oscillating
- Most probably effect of remote sensing.
 - With old system: High Common mode values observed – due to this effect?
 - Sensing essential – too high voltage drops on supply lines. Needs further investigation
 - This happened also on Hybrid 4.1 on DCD VDDA VDDD and AmpLow. Using a big capacitor at the power output helped there. Does not seem to be the case on Hybrid 6

- **No Matrix operation possible with new Power Supply setup**
- **Bad Clear High and Clear Low voltages. All Clear Voltage level is bad.**
- **After investigation: Switcher Signals from DHH show no Clear Strobe**

- **Second available large PXD6 bonded (to be tested)**

Thank you

