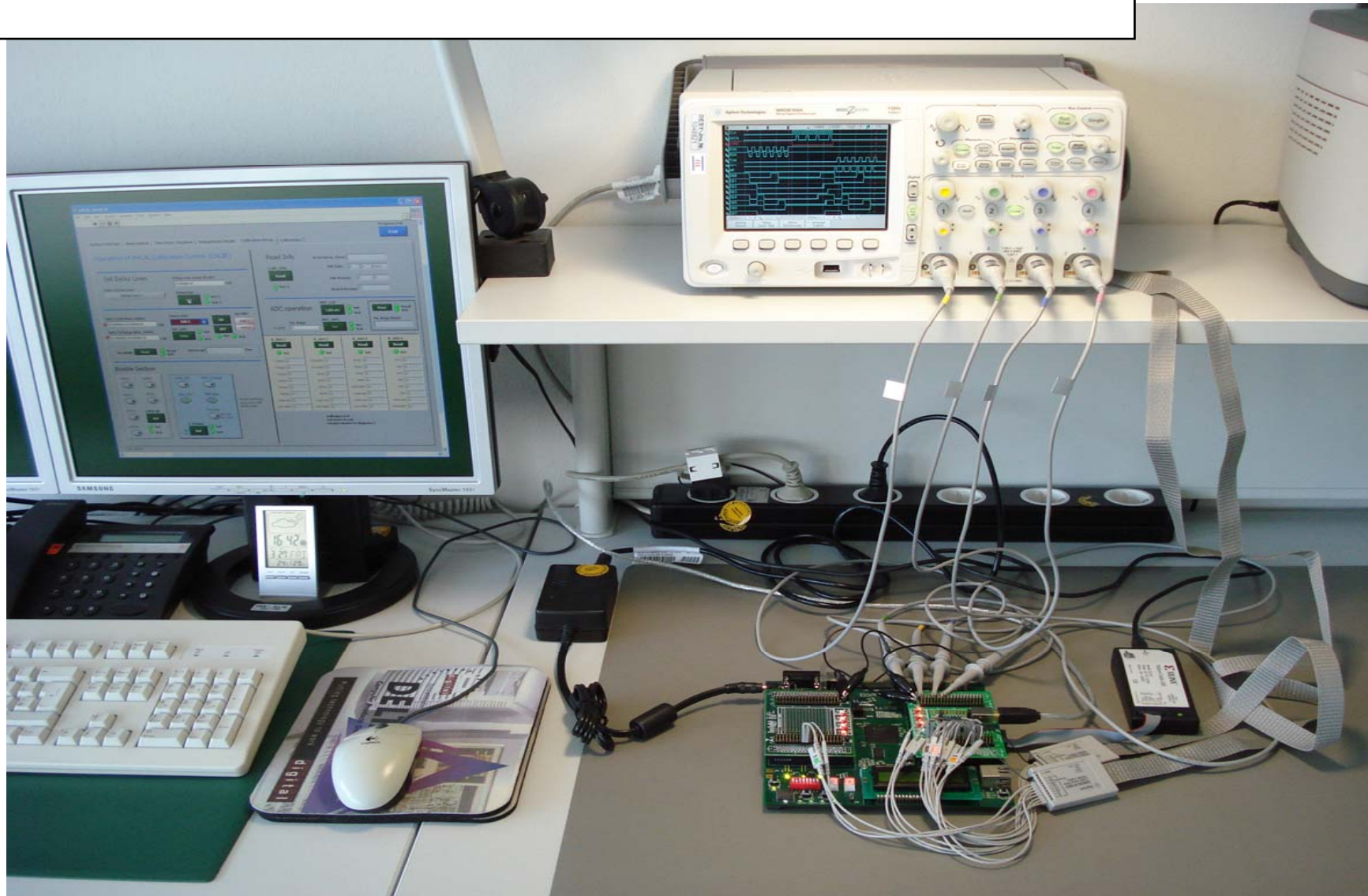


# DIF working group meeting summary



## Local support:

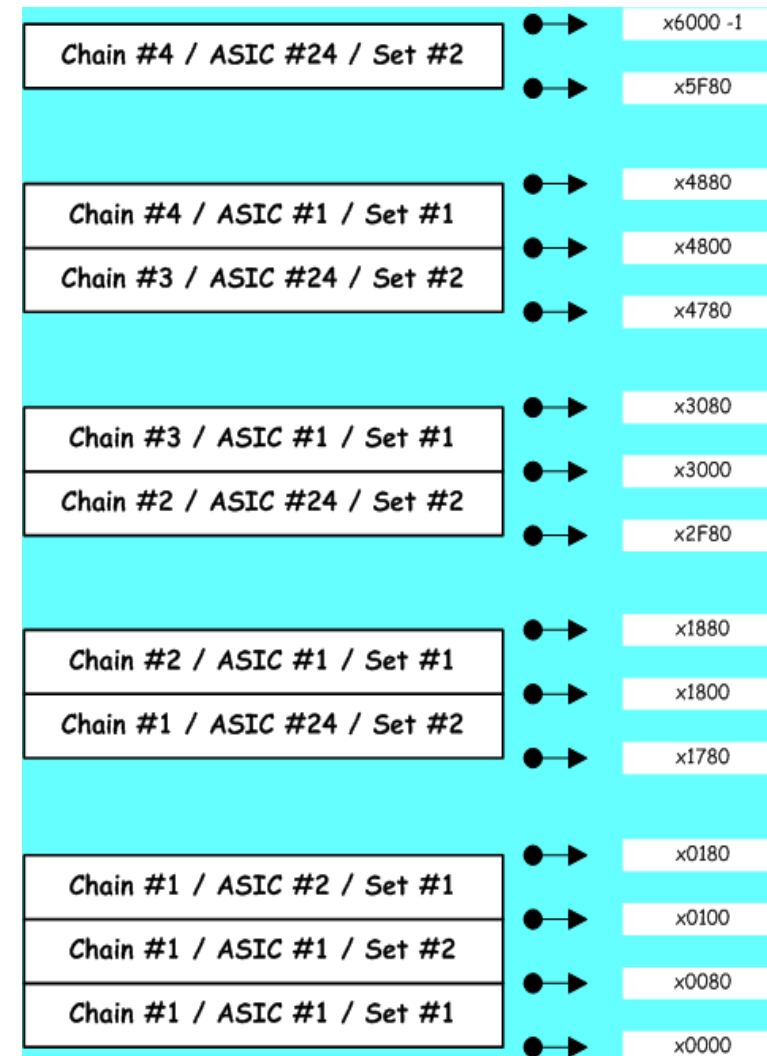
- Mathias: meeting room, cookies & refreshments
- Frantisek Krivan: excellent starting point presentation on AHCAL DIF issues

## The wealth of choice: USB vs. DIF<->LDA link

- Groups focusing on cosmics or beam tests seem to prefer using the USB interface, as it is light-weight and universal.
- Others focus on the DIF-LDA link (HDMI): this will be the main interface for the final DAQ. Getting familiar now will mean less work later -but operating the DAQ chain does require some support
- Strive for transparency between the two protocols. BUT:
  - amongst other features, synchronous operation very difficult to implement on USB only.

## Slow Control Data Transfers

- Slow controls data for a full slab makes a considerable data volume: 100+ chips \*  
 $O(900)\text{b}/\text{chip} = \sim 100 \text{ kbits}$ .
- For AHCAL: calibration data is sent often, for T-compensation of SiPMs
- Max. block transfer packet size: 1kB
- Local copy of two (more?) data sets stored locally in flash-RAM on the DIF
- Proposed addressing: one packet per VFE ASIC, to be stored in pre-defined location



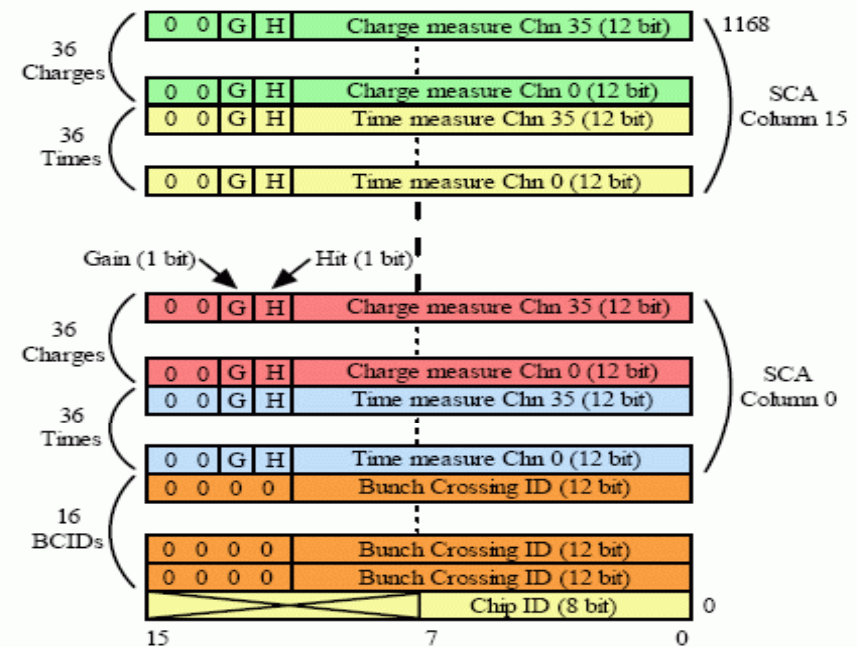
## DIF->LDA data transfers

- Try to keep single data format for all block transfers in both directions
- Max. block transfer packet size: 1kB
- DIF should be data-format agnostic: receive data, chop data in packets and send to LDA.
- Data format from VFEs is efficient, but not very DAQ friendly
- Make sure data packets can be reconstructed off-line
- This poses requirements on RAM availability inside DIF FPGA, (no problem for modern types)

## DATASHEET

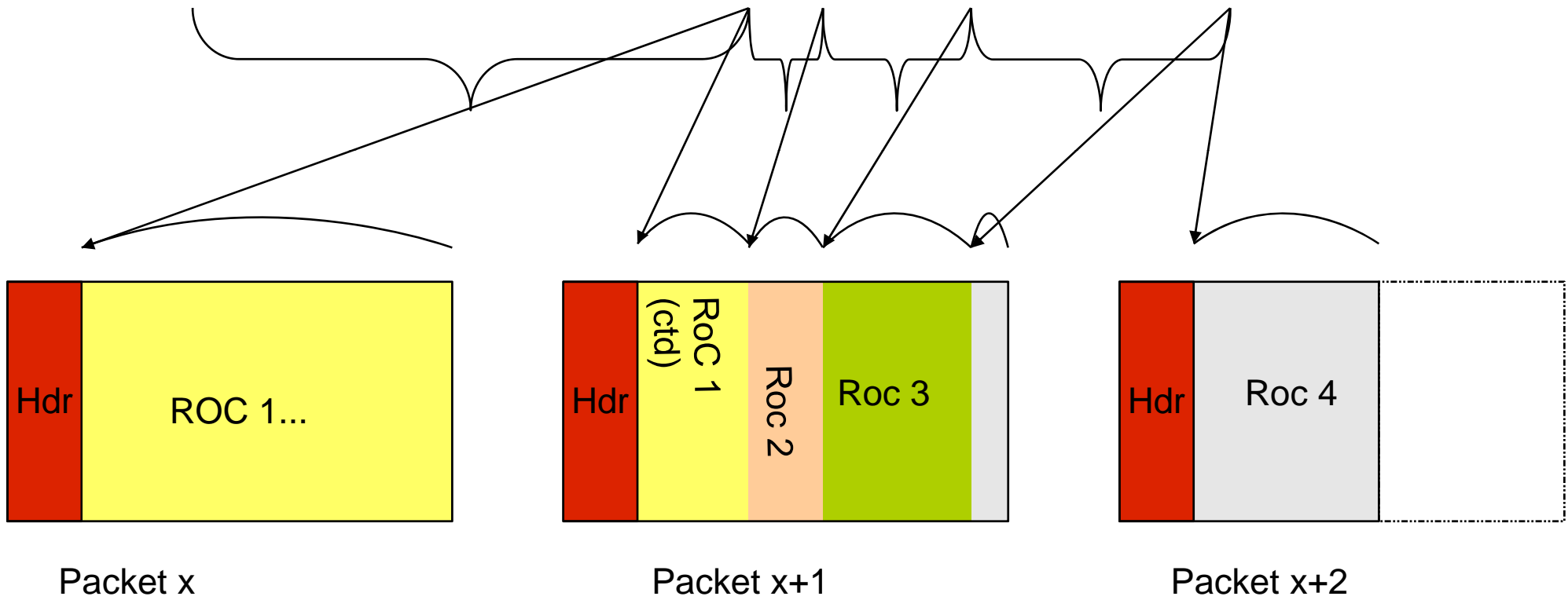
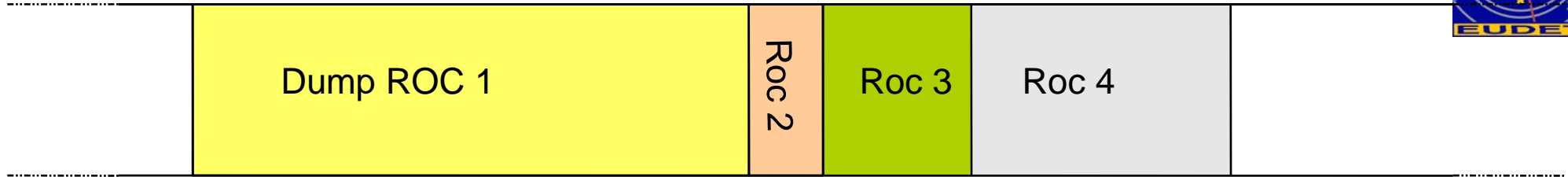


### 12 Spiroc RAM mapping





Chain 1



## Remark & Question:

- DAQ requirement: counter for Spill\_ID is necessary: data is sent to storage unit according to Spill\_ID. Should be put in pre-defined location in data packet
- Is there a need for data processing (sorting?) of any kind on the DIF?

## ‘Conclusion’:

- Good agreement among DIF developers on way forward
- Regular meetings (a la EVO) to keep us looking in the same direction