

## **Timescales**

Give an indication of timescales

## **Handling of links from Front-End electronics**

- How many sub-detectors will be deployed?
- What's the data throughput for each sub-detector? And overall?  
Explain these requirements in terms of number of channels, amount of data per channel, digitization frequency, trigger window duration (e.g. how long is a drift time) and trigger rate.
- How many links, and of which type, you will need to handle from Front-End electronics? What's the maximum level of compression that can be realized in order to reduce the total number of links?
- What synchronization is needed among the different elements of the FE and possibly with other external inputs?

## **Integration of the trigger system**

- Do you need any backpressure of the DAQ towards the trigger distribution?
- What hardware will be used to implement the trigger logic?
- Will the same trigger signal be distributed to all FE units of the different sub-detectors or is a segmentation of data acquisition foreseen (e.g. Region of Interest)?

## **Event building**

- Will the data packets coming from all sub-detectors supposed be merged into one single file?
- What additional information will be associated with each "event"? Will this be stored in an event header or is a different structure foreseen?
- Is there any specific requirement on the data format?
- Is any compression needed? If so, of which order and at which point of the event building?

## **Data flow**

- Do you foresee any zero suppression? If so, at which point in the chain?
- Do you need to handle multiple streams of data packets for each "event"?

## **Monitoring tools**

- What are the mandatory checks of integrity of the data? Is the information contained in the header enough or will the opening and reading of the files be needed?
- Is there any specific need on the type of interface of the monitoring tools? Are they supposed to be interactive, e.g. with the possibility to remotely apply changes to some plotting parameters, or passive - i.e. user looks at plot only?
- What features are foreseen for keeping track of data flow?
- Which nodes of the processing chain must be remotely accessible? With what level of protection?

Provide simple block diagrams of the data flow, from Front-End electronics to post-processing, indicate for each piece if:

- it is already existing or under development or still to be designed;
- it is strictly defined or open to slight changes or can be completely substituted with a different solution.