TimeSPOT WP4:
Stato delle attività a Milano

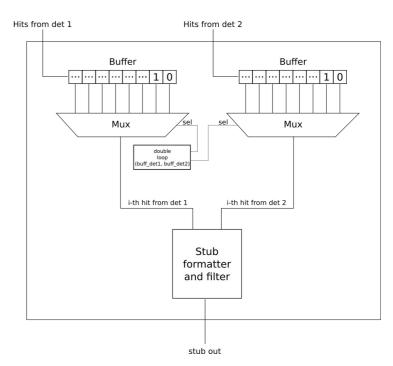**Marco Petruzzo**

26 Ottobre 2020

Stub Constructor status

- **StubMaker** has been **tested**

- Minimal **StubConstructor** (grid of Stub Makers) has been **tested**
  - I am working on a **better way to instantiate the grid** in the firmware
  - Initially the grid is instantiated as a 4-dimensional array in which many connections are not instantiated (i.e. StubMakers associated with regions not permitted regions on first/second detector of each couple)

- Implementation of the **"Stub filter" ongoing**:
  - It removes the prestubs (couples of linked hits) based on finer filter (timing + geom.)

Next plans

- Complete the "full" Stub Constructor (including **XY-to-Rph**i conversion and **Stub filter**)

- **Evaluation of the FPGA resources usage** w.r.t to the number of modules
  - Evaluate the maximum amount of Stub Makers per FPGA (on VC709 board)
  - Rough estimation: **3.5% of FPGA / 16 Stub Makers**
  - Approx. **225 StubMakers, considering 50%** of the FPGA resources
  - (This number has to be validated with actual implementation, since not all the resources scales linearly, i.e. the delivery of the data to the Stub Makers' grid)

- **Test** of the full architecture implemented on two boards
  - Stub Constructor on the **VC709**
  - (Stub) Switch + Engines on the **gfEX**