Status of Online/Offline SVT Simulation

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- $\exists$ C code in offline CVS ("svtsim") to simulate bit-level data flow through baseline SVT (without layer 00, for now)
- C code is modular and highly compatibile with object-oriented world view
- Interfaces between board simulators have been discussed extensively at two recent SVT workshops; more detail filled in in recent weeks
- We need ANSI C so that we can run same simulators both from Trigsim and in crate controller CPUs for online diagnostics
- $\exists$ basic (and temporary) AC++ module (in C++, of course) to feed C simulators from SIXD raw data and (for now) COT reconstructed tracks; also writes SVTD
- Eventually, a more extensive AC++ module ("SVTSim" package), developed by L. Moneta and C. Berlacz from Geneva, will interface to the offline and expose more internal details to C++ analysis code

svtsim: current status

- **We are using real patterns, generated in Pisa, which we plan to use as starting point for commissioning run**
- **As a check, we find GEANT single muons (in CDF2 offline) with $\sim$ 97% efficiency, as in the old svtsim used to make patterns**
  - **fiducial by construction: high p_T, $\cot\theta = 0$, z_0 in center of half-ladder**
  - **some very minor tweaks, needed to move into hardware coordinates, are now in Pisa patterns**
- **Finds and writes (to SVTD) tracks, but fit results are nonsense for now**
- **Currently working on using Pisa fit constants**
- **Note that putting pieces together is really teaching us how we will configure the SVT hardware for August; it's much more than just a coding exercise**

svtsim: next steps

- **Put fit constants into representation used by Track Fitter hardware**
- **Validate resulting tracks**
- **Check performance on busier events**
- **Integrate with Geneva AC++ module; XFT simulator**
- **More work on configuration file formats (which are needed in some form for downloading real boards, as well as initializing simulators); eventually these will become database entries**
- **Finalize simulator interfaces; then maybe rework some of the internals**