

SPYMON status and plan for use of svtsim

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SVT meeting
10/28/02



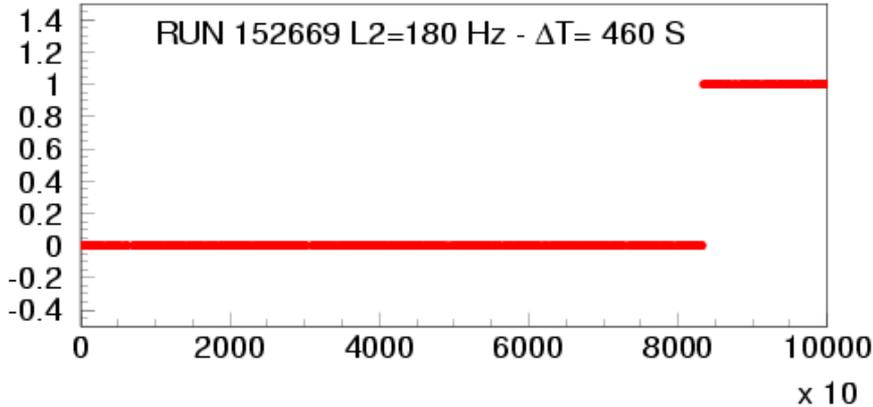
SPYMON status

- Most of the work on crate side:
- Beam Fitter
 - Speed up (see next slides)
 - Support for new GB board
- In preparation for svtsim support:
 - Measure timing (see slide)
 - Decouple smartsocket messages sending from “analysis”
 - allow for faster statistics collection w/o flooding the network and UNIX programs (SVTSPYMON+spy_manager+spyGUI) with messages

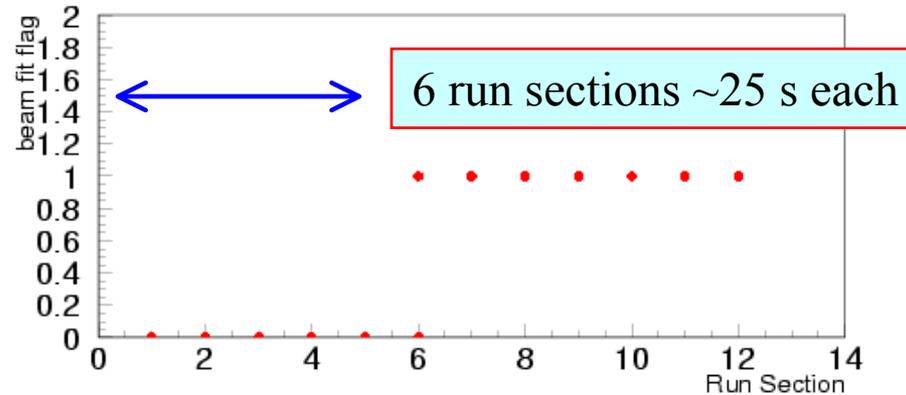
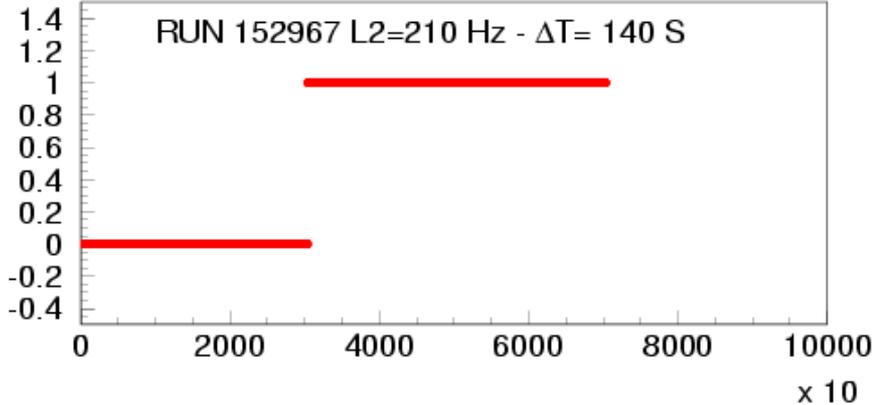
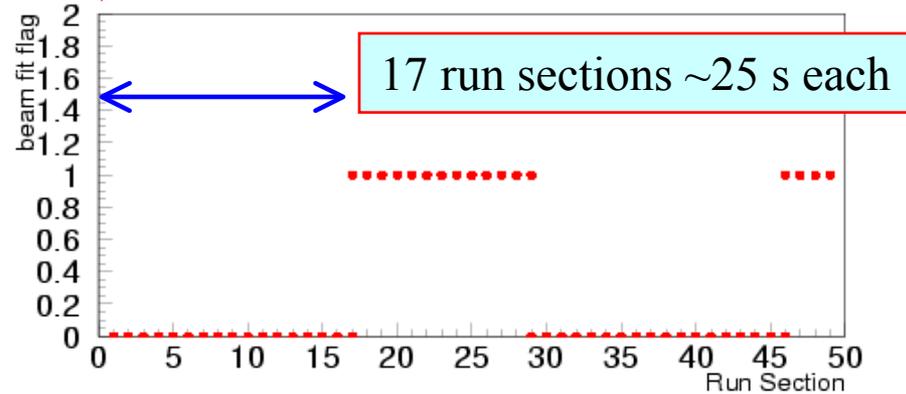


Time to first beam fit

Start of store



Start of store



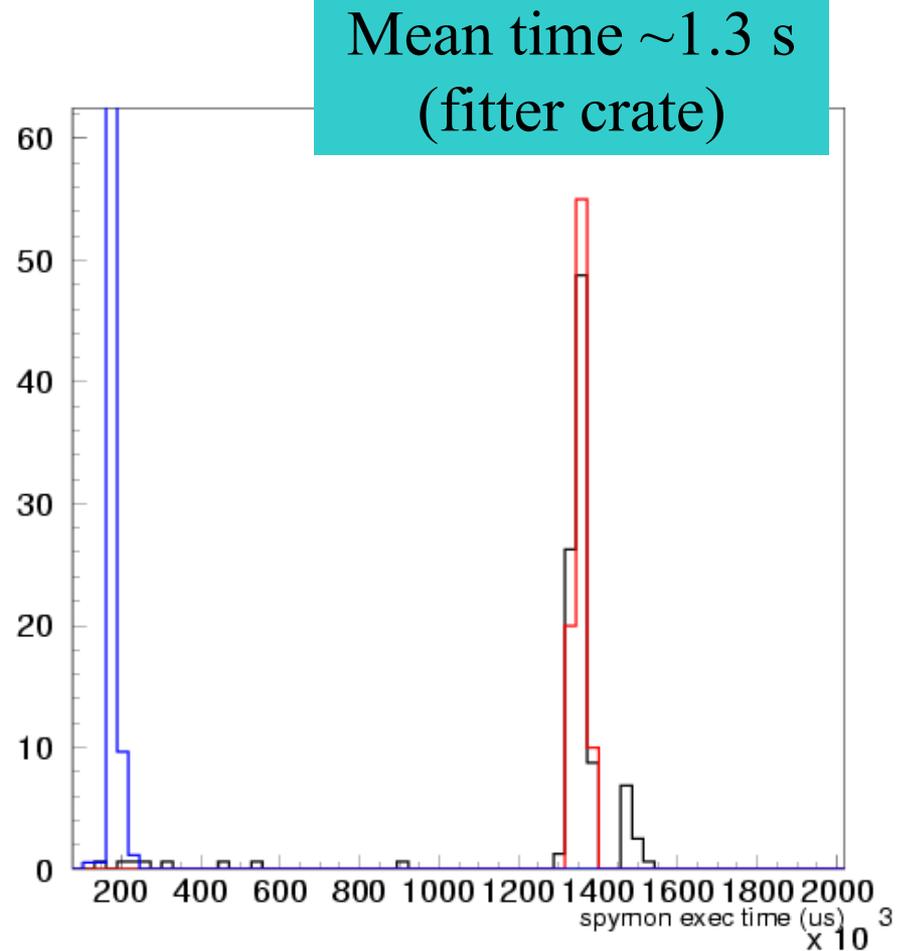
SPYMON processing time



Total time dominated by Processing time (includes SVTbeam fitting in this plot):

b0svt06: 0.2/1.3/1.4 s

b0svt00-05: 0.4/0.55/0.6 s



SPYMON status

- First steps in allowing user configuration from outside the crates:
 - All the idle time (i.e. sleep()) transformed to live time for listening to SS messages
 - Whenever idle again catch up with incoming queued messages
 - Can detect RC state change and react
 - Special diagnostic still to be written...
 - spyGUI can send configuration command to SPYMON (need some more work on doing something with this on the crate CPU)
- Chris Hill asked for special diagnostic of stuck cell in our program (work in progress...)
- Very difficult to progress due to steady running and newborn Francesco related issues...



Updated plan for svtsim

- Need to consolidate the incoming smartsocket connection
- For each SVT wedge build its corresponding emulators
- Load them with preloaded constants living already on the crates since last coldstart
- Start from bottom of TF spybuffer and build the bc/L2 buffer sequence
- match it on the other available spybuffers
- emulate the events appearing on all of them
- Report on the SVT status message (ending up in a web page) the number of events checked and fraction of success/failure for TF output



Updated plan for svtsim

- On a longer time scale:
- Allow for “test point” at any intermediate (user specified) stage of SVT processing
- Allow for masking of possible frequent errors
- Allow special dump of buffers with errors
- Check every event in common between any pairs of Spybuffers
- Plot svtsim/reality mismatches in some way for SVTSPYMON and consumer operator



SVDD – beam fitter (old slide)

- **Switchover plan:**
 - Write temporary card with second SVDD readout (next store)
 - Check we can fully reproduce GB with svtsim? (from look area)
 - Decide how we define status bits in SVDD in the new scheme
 - Switch card contents and remove temporary card (next to next store?)
 - Write card with 3D beam fit
- **Things to think about:**
 - How to deal with single barrel fit failures and/or with new fits in only few of the barrels , e.g. when not enough statistics for fitting all of them (right now: allow only valid/good fit in all 6 barrels)
 - GB initialization from last good beam fit
 - Can we clear the beam fitter statistics (and status bits) at each new store?



SVDD – beam fitter

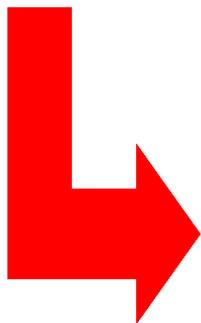
- **Switchover plan:**
 - Check we can fully reproduce GB with svtsim? ✓
 - Write temporary card with second SVDD readout ✓
 - Decide how we define status bits in SVDD in the new scheme
 - Switch card contents and remove temporary card (?)
 - Write card with 3D beam fit ✓
- **Things to think about:**
 - How to deal with single barrel fit failures and/or with new fits in only few of the barrels , e.g. when not enough statistics for fitting all of them (right now: allow only valid/good fit in all 6 barrels)
 - GB initialization from last good beam fit
 - Can we clear the beam fitter statistics (and status bits) at each new store (yes)? ✓



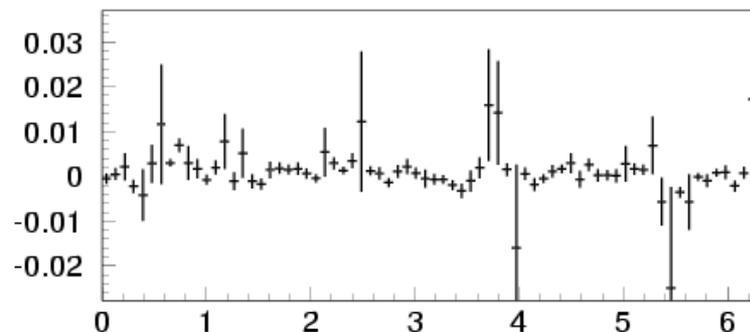
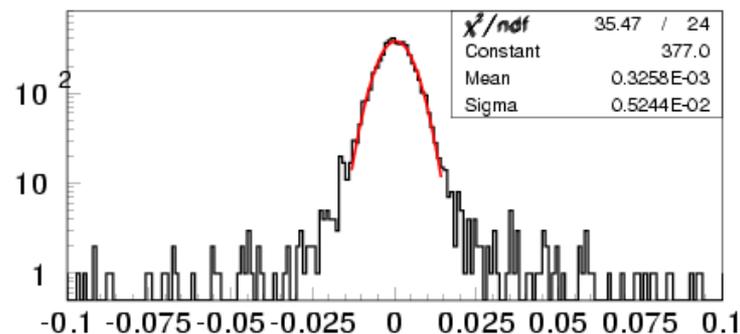
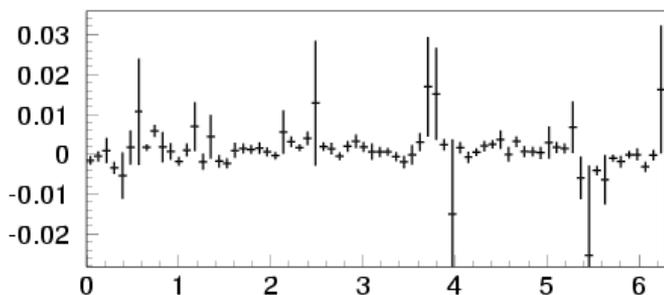
3D beam info in SVDD

3D beam INFO

1	Card type = BEAM3DINFO =0xb
2	16bit X0 + 16 bit Y0 (microns)
3	16 bit DX+16 bit DY (microrad)
4	FIT status (1=OK)



SVT beam



Offline
beam