SVDD readout status and problems

SVDD structure

- Original SVDD structure by Stefano B. and Bill after other generic trigger banks, in brief:
  - Each crate write a “module” or “block” of data
  - Each “module” contains several “cards”, the number of which is decided at run time (maximum flexibility)
  - Each card contain an ID word (e.g. beam position data) and an array of data words of variable length
  - All the read-out code is in our hands (svtvme_fer.c) and controlled by switches in hwset or in global variables within svtvme code
- Very nice but never implemented/documented very well…

SVDD minor problems

- SVT crate numbering and “block” numbers do not match
  - Irrelevant in practice but important to correct for “documentation” beforte even Stefano or myself disappear….
- Monitoring of the beam position vs L3 tracking etc. not yet fully implemented

SVDD major problems

- Pointers to cards inside each “block” is NOT in our hands
- We should have done a better job at idetifyng this problem which was present in reality since day 0
- This began to hit us when second GB boards was moved in crate 6 at the end of Bill’s era but with no practical consequences except a warning in the unpacking code
- Practical consequence appear only when tryng to use only one GB (or, most likely, if we ever used any of the GB channel skipping any lower numberd one)

Example of a “bad” format

20: 00000005 00000007 0000000f 00000007

24: 00000013 00000007 0000002d 000a00ff

28: f74a15cc f7ae15fe f81c1630 f880166c

32: f8ee169e f97016d0 02108421 000b00ff

36: f84e164e 02b50155 00000000 000e00ff

Possible solution

- Easiest way to go, if my diagnosis is correct, is to add to SVDD at run time exactly the cards we need. This is exactly the same info we already use in order to skip unused readout channels of GB.
- Other solution by using only switches in hwset impossible unless we drop also the GB timing info (still require modification to svtvme_fer.c !)
- Code modification minor, but need to be tested up to the level where we can read back a file on disk, otherwise cannot easily check if the pointers are set correctly.
- I’m available to work on this when I’ll be there in 10 days. Can help degug and check code remotely…