

SVD software update

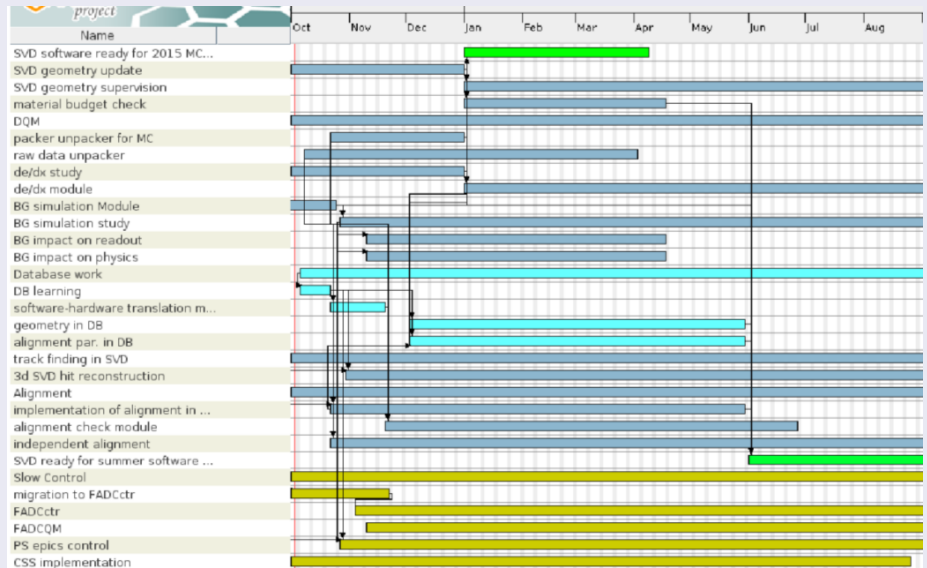
- SVD geometry update
 - ready (Jacek)
 - any input how precisely we need
 - it could backfire on us, when people will finally realize they cannot visualize the detector
- BG simulation
 - Peter, Nibedita
 - Now it is the time for wish-list, what do we want them to show us ?
 - fortunately or unfortunately we should watch for more *surprises* there...
- Unpacker and packer for simulation
 - Basically ready (Jarek/Abdul)
 - Note; only for MC simulation should be updated before the DESY beam test
- DB issues
 - The positive development we have new people looking at it (Abdul)
 - We need to get a review of tables we have/need → tracking, slow control, alignment, PID.
- Slow control
 - We are progressing but still far from having the system in hands
 - The core group of developer/helper (Hao, Szymon, Christian (?))
 - The maximum convergence with PXD system

SVD software update (2)

- tracking
 - positive: Jakob serves as contact person
 - negative: no new input from us to tracking group, probably problems in simulation (low hit finding efficiency)
- Alignment
 - Tadeas as a liason
 - he is going to provide tools for alignment check
 - nobody is preparing an alternative alignment procedure
- Signal generation, signal formation, clustering - Peter
 - Peter waits for a good opportunity to update the code (in other words to break everything)
 - new person Daniel
- DQM no progress
- de/dx no new input from SVD group

Task list (Pisa VXD meeting)

Short term tasks list



The SVD software people list

Current contribution

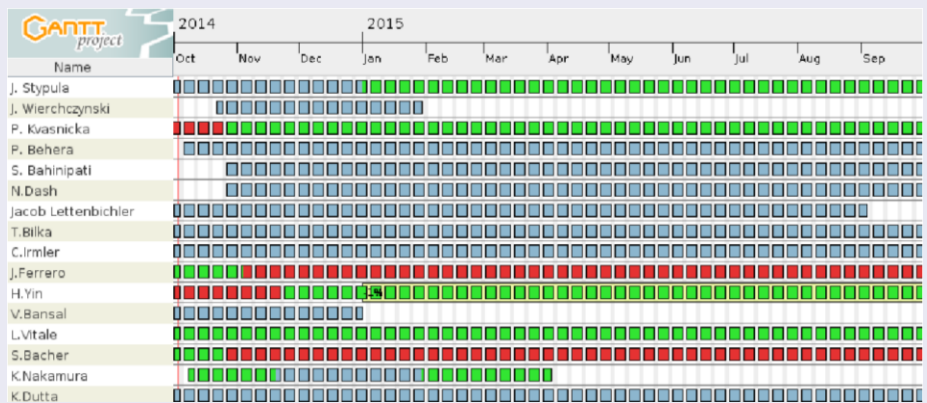
- P.Kvasnicka (Prague) digitalization, alignment, BG studies, DB
- T.Bilka (Prague) alignment
- D. Cervenkov (Prague) software validation
- J. Stypula (Krakow) geometry implementation
- J. Wiechczynski (Krakow) Packer/unpacker
- S. Bahinipati (Bhubaneswar) BG study
- N. Dash (Bhubaneswar) BG study
- J. Lettenbichler (Vienna) track finder
- K. Nakamura (KEK) beam data analysis, unpacker, slow control, daq,
- S. Bacher (Krakow) slow control
- H. Yin (Vienna) slow control, beam data analysis
- L. Vitale (Trieste) slow control- contact for environmental sensors
- P. Behera (Madras) DB, unpacker, packer
- G. Mohanty (Madras) DB
- V. Bansal (PNNL) de/dx

- We don't have so much time to prepare a viable software:
 - VXD beam test at Desy (\approx Jan 2016(?)) - slow control, DQM, rawdata handling, ...
 - Large scale MC production (begining of 2016 (?)) - database issues settle, reliable hit reconstruction efficiency (not 90% !!!), quality monitoring.
- Short term schedule (summer 2015)
 - de/dx work start/restart,
 - database tables defined and unified (currently responsibility distributed between simulation, slow control and alignment),
 - tracking - 3D hit - it is needed not only by Jakob but first of all for low momenta track recovering,
 - digitization and clustering studies - we should be able to test FADC algorithms inside MC simulation,
- Other issues (doesn't have to be ready by the start of mass MC production):
 - alignment quality monitoring + second alignment approach
 - low momentum track treatment - momentum determination, reducing combinatoric (correlating charge in cluster, ...)
 - ...
- We should aim for having a full software by mid 2016, please let me know, if we miss something important.

Problems: **unmanned** or **undermanned**

- *intelligent* 3D SVD hits point reconstruction
- Curling tracks - finding
- Parameter-tuning for the TrackFinder
- dE/dx measurement and storage in DB
- dE/dx check, in simulation and later in data based on physics events
- Alignment quality check
- Independent alignment SVD program
- V0 reconstruction check
- material distribution check in SVD (e.g. gamma conversion)
- D^* , $K^0 K^0 K^0$ and others physics checks

SVD people list



SVD software - Organizations issues

The recommendation from SVD IB; We need to think about better organization of the SVD software work:

- we have to define responsible persons for specific areas,
- we have to improve communication with groups with overlapping group:
 - contact persons - working in particular group,
 - they should report in reasonably frequent manner the progress inside SVD group,
 - they should ask for help inside the SVD group if problem is related to SVD.

The related groups:

- Tracking
- Alignment
- BG
- DB
- DAQ

We still have manpower deficit

SVD software Status - Organization

- Tracking:
 - we had presentation on pattern recognition by Jakob,
 - → long discussion on way to include additional information from SVD to improve pattern recognition,
 - I believe right now Jakob is the best candidate person for contact,
 - we miss someone looking at dE/dx issues in SVD (for PID)
- Alignment:
 - we had presentation on silicon detectors alignment by Tadeas,
 - the SVD standalone alignment can be done by this module,
 - the alignment quality monitor is next in line,
 - we need alternative program for cross check,
 - again I think Tadeas is a right person for contact.
- BG
 - Peter is working on
 - We agree some time ago that Seema and Nibedita will take over soon
- DB
 - several people from SVD are involved in (Peter, Tadeas),
 - I hope Prafula can get involved and will be our contact person.

SVD software Status -Organization

mainly SVD software subjects

- Slow Control:
 - DAQ contact person Nakamura-san,
 - we have group and work plan still we need someone responsible for overall project,
 - DQM (Kamal), as something which is going to run online, should be probably part of same effort.
 - raw data unpacker.
- Signal generation, signal formation, clustering - Peter Kvasnicka
 - packer/unpacker for simulation.
- geometry
- quality check

We still have manpower deficit

SVD software

- There are many tasks and many people working. An obvious problem is to monitor their progress, especially as many of the people usually don't attend the SVD software meeting. In fact, some tasks better fit in the simulation, tracking, alignment etc. groups. So, we should clearly define to which software group (SVD, simulation, tracking, . . .) which task belongs and thus who is in charge of making sure there is progress. If a task is somewhere between SVD and tracking (for instance) nobody might really feel responsible.
- Still, we as a group, we have a responsibility to deliver a working detector with best possible analysis tool.
- We should encourage people to present their work also on the svd software meetings, for many reasons:
 - sharing their knowledge,
 - getting feedback from different group/ angle
 - and to avoid duplication or omitting some important of the preparation

Software meetings

- every second Wednesday 19:00 JST (or 11:00 CET),

- **DB** - temporary solution (PXD), no way we have to start to use it ASAP
- Preparation for MC production starting from Jan. 2015
- Mid. year MC production (July 2015)
 - no clear specification from Belle II software group
- Slow Control - DESY beam test (Autumn 2015)