November 2009 Production Status

David Brown

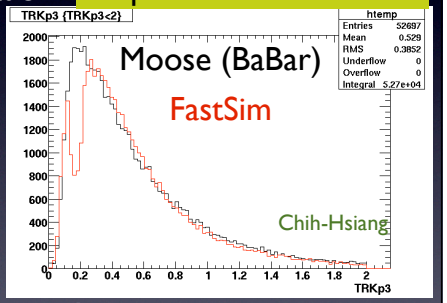
FastSim Production

- Events simulated from generation to physics tuple in one step
  - no event persistence
- Many analyses in parallel
  - Common parts run only once
  - $K\nu\nu$, charm, S2B, 2-body,...
- Generator, detector + beam configuration, analyses run driven by script + xml
- Concentrate on generics
  - B^+B^-, $B^0\bar{B}^0$, $c\bar{c}$,uds

November Production Goals

- Repeat September 2009 production
  - Same resources, statistics
  - Same background simulation
  - More analyses
  - More generic modes
  - improve job submission
  - better validation
  - bug fixes
- Results in time for this meeting
  - help detector + analysis communities

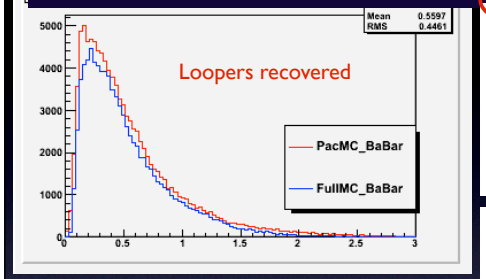
Track momentum
September Production

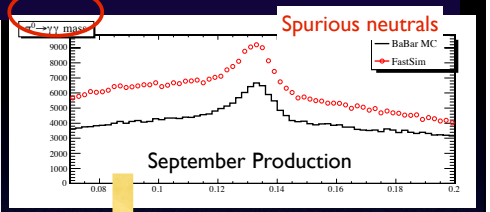


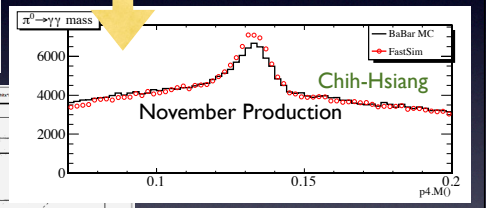
Production Prep

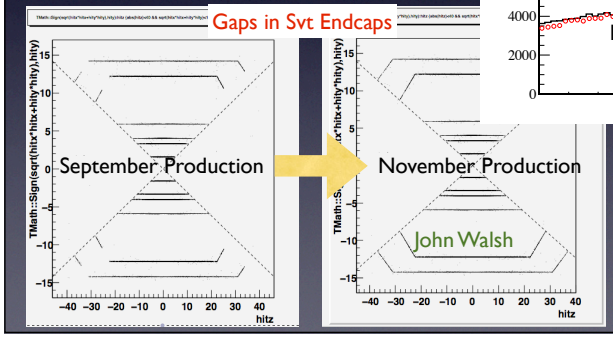
- Release V0.1.2
  - consolidate Patches used in September production
- Validation procedure established
  - Subsystem experts identified for Trk, Svt, Emc, Pid
  - scripts and macros (mostly) in PacQA package
  - Plots posted on the web
- Web-based job submission system developed
- FastSim fixes and improvements
  - Patches in V0.1.2

Fixes for November



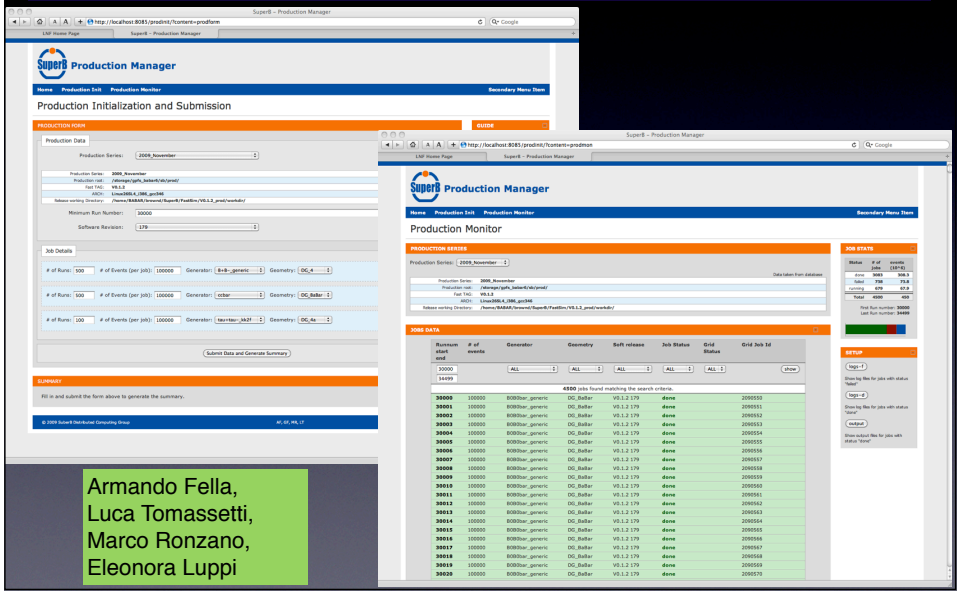






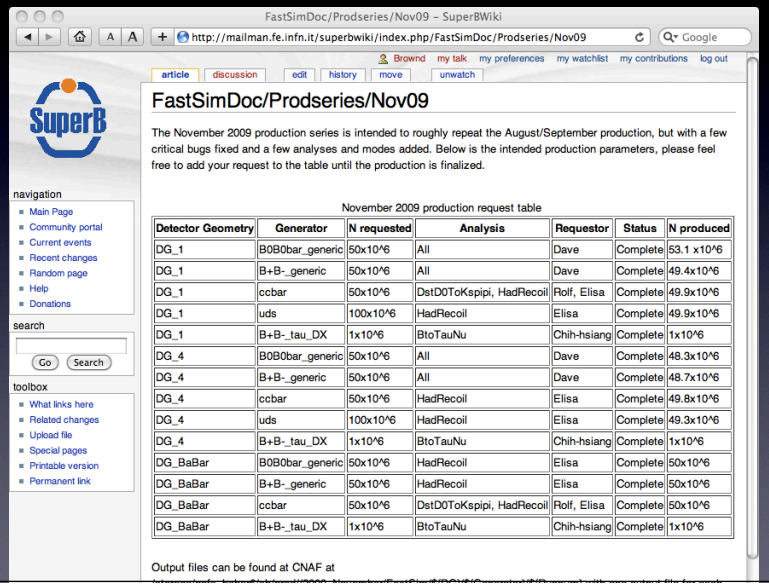
Plus many memory fixes

Production Manager



Armando Fella,
Luca Tomassetti,
Marco Ronzano,
Eleonora Luppi

Request Interface (wiki)



Production Status

- ~5K jobs of 100K events each
  - >5X10^8 events
- ~2Hz for $B\bar{B}$ events, ~6Hz $c\bar{c}$, ~10Hz uds
  - dominated by BReco times
  - BaBar geometry ~2X faster
- 750 failed jobs (no hangs)
  - log file size exceeded disk quota
  - code crash << 1% (3 jobs)
- Several TBytes output
  - dominated by charm analysis

Production Issues

- SVN server problems delayed startup
  - backup repository?
- Memory leaks
  - one analysis disabled due to large leaks
- No production queue
  - production jobs competed with user jobs
- limited resources
  - ~500 slots@CNAF
- No ‘official’ production manager
  - jobs run as private person (me)

Production App Issues

- Lots of memory leaks from initialization, root
  - makes finding real leaks difficult
- Lots of runtime warnings

7% UsrWriteBSemiExcl::UsrWriteBRecoBase.hh(63):Cannot put mES = 5.20683 for candidate UsrCandBlock

1.5% ptc of type 4 is too heavy to radiate Cerenkov photons (momentum = 0.865621 GeV, beta = 0.678079)

1.3% BToDstarTrigger::TrkGammaVertex.cc(147):parallel point not parallel!

1% TaggingKaonMicroSelection::PidDRCLike.cc(304):Invalid index -33 for trkQualBin 3 cangleBin 0 pbin -3 ipart 0

0.3% PmcReconstruct::PacReconstructTrk.cc(153):unphysical fit, track deleted

0.1% S2bBListTaggingDispatch::BtaRecoTrackingObject.cc(190):Poca to point failed: returnning flightlengh 0

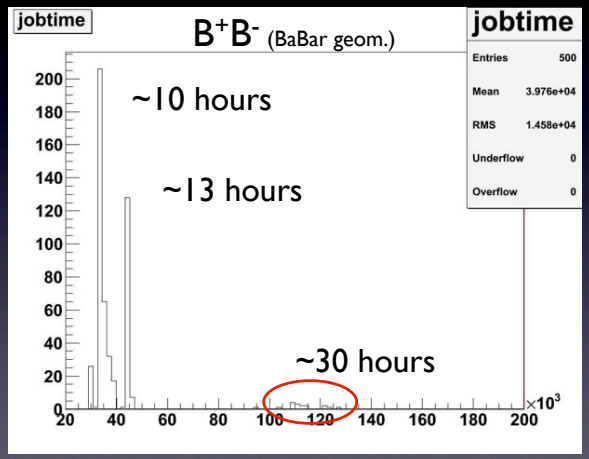
0.1% BToDstar0Trigger::SmpListMaker.cc(228):Output list "Dstar0ToD0GammaHardLoose" reached maximum allowed

0.02% PmcReconstruct::TrkPocaBase.cc(192):Alleged oscillation detected. 6.64692 -4.92857 28

0.02% PmcSimulate::PacEMShower.cc(162):Interpolation failed in findShowerStart

0.003% EvtGen:Tried accept/reject: 10000 times, and rejected all the times!

Job completion time



January Production

- First ‘full-scale’ production for TDR
  - ~10X scale of November production
- FullSim + FastSim production
- Physics reach + detector studies
  - how many geometries will we need to simulate?

Needed for January

- FastSim background modeling additions
  - pairs, Touschek, neutrons, ...
- Additional analyses (?)
- Job management improvements
  - web submission, automatic menu update, ...
- Additional resources will be required
  - Must use sites beyond CNAF
- Production Manager
  - dedicated position for ~1 month

Conclusions

- November production was a success
  - substantial improvements
  - substantial statistics
- Important lessons learned for the future
- January is only 1 month away!
  - Final developments are still under development
  - Target production start for Feb. 1st?