DAQ Status for Run 3

John Haggerty
Brookhaven National Laboratory
For
Adler, Desmond, Pinkenburg, Purschke
Chi, Chiu, Nagle, Zhang
Cole, Kelley, He, Mishra, Batsouli
Belikov, Lajoie

DAQ Plans and Results for Run 3

- The DAQ groups made plans for Run 3 starting in January– see http://www.phenix.bnl.gov/~phoncs/daqfest_2002_01/ for our thinking at the end of Run 2
- Basic thrust of improvements:
  - Upgrade basic software to current versions
  - Speed up startup and shutdown
  - Bring event handling capability from 1.8 kHz to 8 kHz
- We have made great progress in all these areas due to a lot of hard work by a lot of people during the shutdown, and the roll-out of new software has been going well
  - CORBA upgrades managed by Ed Desmond have been very successful, and have been the driving force behind the increased execution speed
  - Steve has moved run control to Linux, and made many changes to the architecture to speed things up; the new rc –standalone went into operation by detector groups as smoothly as could be
  - Chris and Martin have worked to rationalize our build procedures
  - Chi, Jamie, and Mickey have worked to optimize the event transmission speed through the DCM's
  - Brian, Sean, and Sotiria have worked to take advantage of the new version of CORBA to speed up the Event Builder, and are about to deploy new, faster ATP's and SEB's
  - Faster buffer boxes and logging software appear to be on track for logging data up to 100 Mbyte/sec

DAQ Jobs in the Next Two Months

- Add new ATP machines to EvB, demote present ATP's to SEB's
- System management of EvB nodes (CORBA, W2k, Jungo?) and SEB cabling
- Reprogram JSEB's… do interrupts really work?
- Move ARCNET servers to new CORBA (allows MUTR calibrations transparently, it's the right thing to do)
- Check timing system for global starts/stops (it was rewired)
- New EMCAL short format?
- PC 5 event buffering?
- EC subsystem checkout (including many new TEC FEM's)
- L1 and L2 trigger scaledown separated from gl1gui logistics
- Help subsystems with DAQ problems
- Integration of LL1's for NTC, MUID.S, ERT.E&W
- Experiment with PLL to save doing Clock Fix
- Speed tests can take time—we need another round to understand where we are
- It's not DAQ, but it's the DAQ group—roll out new HV
- Trigger testing and (re)timing comes out of us, too
- Put it all together into one Big Partition
- Educate those DAQ operators

DAQ Areas of Concern

- Yikes! The run starts in 8 weeks!
- We haven't really tested any of the throughputs since January, so we could be deluding ourselves with our tests as to how many events per second we can take
- The event length could balloon with MUTR.N, MVD, the rest of EMCAL, etc., and will certainly require vigilance to keep down
- We've changed *lots* of software; we probably cured the failure modes that bothered us, but could easily have introduced many new ones
- We haven't done a large scale system test yet (a large number of granules with the EvB)
- Time for development has to be squeezed out of subsystem testing time—we can coexist to some extent, but by the beginning of December, it will be hard to share time with subsystems and get the whole thing working for New Year's
- Yikes! Shifts start next week! We still have a lot of work to do!