Overview of PHENIX (offline) computing

- organization
- plan
- progress and status
- milestones
- Mock Data Challenge preparations
- Cost to complete
- issues and concerns

Specify Requirements

- what to say here?

organization

- in project structure
  - Core offline - Dave Morrison
  - Simulations - Charlie Maguire
- beyond scope of project
  - reconstruction
    - central - Jeff Mitchell
    - muons - Melynda Brooks
  - physics working groups
    - launched by Spokesperson/EC
    - perform analysis after reconstruction (from DST)
- collaboration contributions
  - reconstruction - via subsystems
  - physics working group membership
  - contributions to core offline, simulations
  - just beginning
- RCF liaison - Dave Morrison
- Analysis/computing coordinator - B. Jacak

Computing Technical Advisory Committee

- Chair: Soren Sorensen
- Computing members:
  Charlie Maguire, Dave Morrison, Jeff Mitchell
- Members from collaboration at large:
  Martin Purschke, Hubert van Hecke, Tom Hemmick
- Ex officio: Barbara Jacak
- charge:
  Review progress and evaluate priorities
  Review and recommend all major decisions
  Resolve conflicts
  Review and recommend official PHENIX software

plan

- laid out plan in January 1998
  - in form of milestones
  - tracking regularly since January
- balancing priorities vs. available manpower
- designing for full luminosity operation
  - more flexible analysis in year-1
- an executive summary (in 1 slide)??

Interactions

- RCF
  - frequent/good interactions
  - have defined PHENIX contributions
    - from core offline group
    - RIKEN contributing manpower
  - additional PHENIX/RCF manpower funds ill defined
- STAR
  - STAF development coordinated
    - Dave Morrison/Torre Wenaus
  - Objectivity database usage/development of joint interest
- PHENIX physics working groups
  - infrastructure development vs. applications
    - communication & responsibilities being developed
      - monthly computing meetings
      - monthly working group reports

Core Offline progress (see talk of Dave Morrison)

- have fully integrated with STAR in STAF usage & development plans
- no FORTRAN user code (except GEANT)
- have finalized raw data format (see talk of Martin Purschke)
- have developed analysis model
  will use ROOT for visualization
- scripts written for nightly code rebuilds, reconstruction job submission
- data base accessors
- other bullets...

Simulations progress

- geometry and detector response fully functional in STAF
- can write simulated raw data
- have generated 100K central Au + Au (MDC)
  - min bias and special muon arm study runs underway
  - will translate to raw data format prior to start of MDC
- work on geometry database underway
- other bullets...

Central reconstruction progress (Jeff Mitchell)

- subsystem reconstruction (I'd like to have 1 slide from each in reserve)
  - DC tracking
  - EMCAL cluster reconstruction
  - MVD reconstruction & analysis (from Ames)
  - reconstruction of data from prototypes?
- subsystem associations (global reconstruction) and efficiencies
  - tracking subsystems look good (1 slide!)
  - tracks + TOF, EMCAL, RICH underway
  - momentum reconstruction (1 slide)
- size, speed of full reconstruction code studied (not final yet)
- defined DST contents for MDC (ultimately will be smaller)

Muon reconstruction progress (Melynda Brooks)

- muon tracker and muon ID reconstruction exist
- muon reconstruction using both exists
  efficiency? one example slide??
- other bullets…

Analysis development

- Physics working groups underway
  - each will participate in MDC with one/few analyses
- DST contents defined
  - will reduce size after analysis tests
  - subset of contents, events to be created by working groups
  - separate streams planned
- physical structure of DST, mini-, micro-DST to be determined
- Tag database for event selection under development for MDC
- Calibration strategy being developed (see talk of Axel Drees)
  - Subsystem calibration software being developed

other progress and status

milestones

- show page each for offline, simulations, central, muon
- state that analysis software development milestones not currently existent
  - evaluate after MDC what to prepare before summer 1999

Mock Data Challenge preparations (Dave Morrison)

- events exist already!
- have plans for
  - accessing and reconstructing raw data
  - DST physical structure
  - selected analyses by physics working groups
- coordinating closely with RCF

Post-MDC priorities

- update DST logical and physical structure, contents
- update Tag database contents, usage
- extent of Objectivity storage of DST, mini-, micro-DST's
- calibration software and database development

Cost to complete

issues and concerns

- manpower!!!!
  - we are falling behind on our milestones
  - increasing reliance on non-PHENIX written software
- reconstruction has no project resources
  - progress good, but slower than desirable
  - different reconstructions for different physics goals
    - will have to determine how to do productions
    - maybe not a problem for year-1
- Is PHENIX on track for day-1 readiness?
- What is missing (or overemphasized)?
- will MDCI be able to sufficiently define RCF resource requirements?
  - analysis server specifications

to include in talks on Wednesday

- technical scope
- progress
- performance, show examples!
- people working - names & responsibilities
  - especially show how collaboration members contribute
  - compare to what is needed in 3 months, 6 months and 12 months
  - students?
- issues and concerns

Accomplishment highlights

- have finalized raw data format
  - can read and write raw data
- scripts for nightly code rebuilds, reconstruction job submission
- DSTs defined
- data visualization tools decided
- have 100K simulated events for MDC
- much reconstruction progress!
  - DC tracking
  - EMCAL cluster reconstruction
  - MVD reconstruction & analysis (from Ames)
  - reconstruction of data from prototypes?
  - efficient tracking subsystem association
  - momentum reconstruction
  - muon reconstruction using tracker + muID
- data base access tools
- tag data base prototype defined