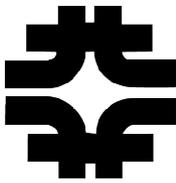


# Nova DAQ Software Development

Gerald Guglielmo  
(CD/CEPA/OAA)



# Project Drivers & Scope

- Provide data acquisition software development for the Nova Experiment
  - CD-1 & CD-2 Review process
    - Changing scope
  - Nova project office
    - Requests and demands (cost pressures, schedules)
  - Development of WBS for aggressive IPND schedule & Production
  - Data buffering, triggering, writing, monitoring, control
  - Remote operations support (isolated far detector site)
  - DAQ Electronics interface



# Project Deliverables Status

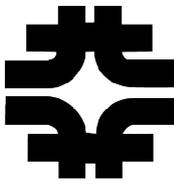
- WBS work is an evolving effort
  - Not yet using it to track (access strictly controlled by project office limits usefulness for L3 managers)
- Many milestones defined in WBS, mostly in the future (a small selection)
  - Documentation (standards, various requirements, various designs)
    - Various stages from not started to addressing review comments
    - Basically behind schedule on Error Handling, Message Passing, Standards
  - TRACE support on schedule (review by 30 June 2006)
  - Evaluation of packages for control and error messages
    - Elvin done; EPICS in progress (ahead of schedule 1 Sep & 4 Oct 2006)
- No one with dedicated large fraction for effort yet
  - Optimize by picking tasks which are better suited for 'picking up where I left off', not strictly as schedule indicates
  - Building foundation for when more dedicated effort becomes available



# Project Milestones

The mission is to provide a performant, robust, and well documented DAQ on an aggressive schedule while appropriately reflecting Computing Division and Laboratory priorities.

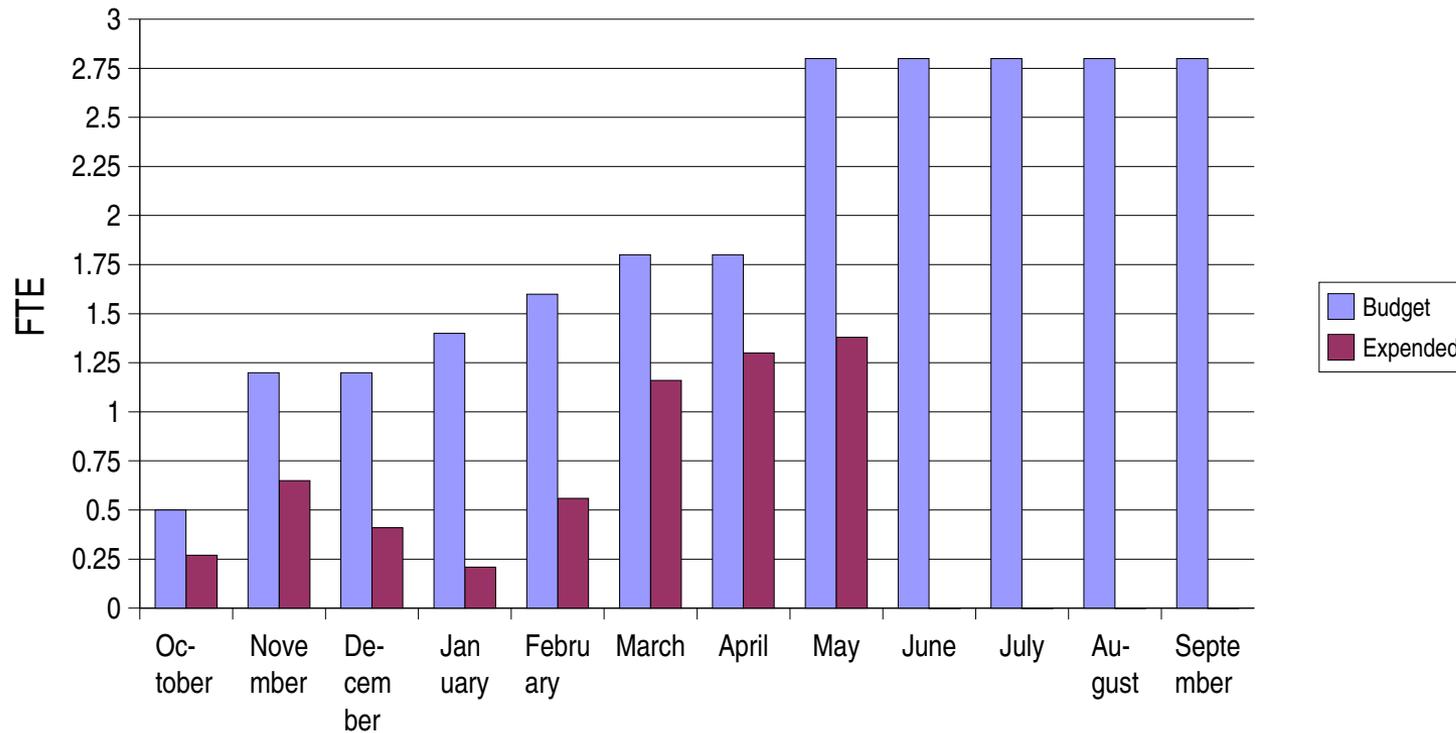
- There are two major milestones for the effort
  - Minimally functioning solution in time for the IPND test running at the end of 2007 (overly aggressive given manpower, trying to improve)
  - Fully functional DAQ system including remote operations support when first 5KT of detector is commissioned near end of 2010
- Bulk of work is really needed for IPND milestone so a very front loaded schedule
  - Not well matched to the project approval process which pushes in opposite direction



# Effort Profile Nova DAQ Software Development

- Jerry's time is mostly WBS and related management activities (0.34 FTE ave)

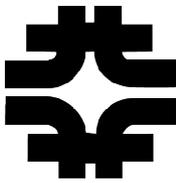
## Nova DAQ Software Effort





# Risks

- IPND schedule is very aggressive and milestones may be missed
  - No schedule contingency
  - Effort available well below WBS levels
- Front loaded schedule does not match project approval process
  - Not keeping pace in most if not all areas forcing creative task juggling
  - Lack of dedicated manpower means context switching precludes involved tasks
    - Some tasks have larger ramp up time to make progress and are not well suited to frequent switching or short duration attention
  - Some tasks require coordinated effort on several fronts
    - Hard to do efficiently alone
  - Allocation of resources can be delayed waiting for project approval
- Project office pressure to do it cheaper since it is 'only software'
- Project office strict control of WBS severely limits usefulness to L3 managers



## Risks (Cont.)

- DOE pressure to keep costs near \$200M
  - De-scoping of detector forcing re-evaluation of needs
    - Reduces amount of hardware needed (buffer nodes mainly)
    - Does not alter real cost to develop software
    - Pressure to defend costs of DAQ system requires effort that could be used elsewhere (2<sup>nd</sup> round since February in discussion)
- Project Office using too low FTE cost for CD DAQ Software developers
  - Costing will jump once we can convince office of level to use
  - Hard to get set since we are understaffed and may not accurately predict salary of future additional manpower
- Other holes in the overall project diverting effort from DAQ activities
  - Already had to jump in and draft DB requirements for CD-1
    - Czar named in June (finally), but still requires effort to prod along