



SLAC EPICS Projects

Problems and Plans



Present EPICS applications

- PEP-II RF – 8 VXI-based stations
- Bunch Injection / Bucket-wise luminosity monitor
- PEP-II Tune Tracker

- Damping Ring RF – Allen Bradley support

- NLC Test Accelerator – 5 VME IOCs
 - 60/120 Hz pulsed operation

- Other SLAC EPICS Projects
 - Longitudinal Feedback – John Fox's group
 - SPEAR III upgrade (Ongoing)
 - BaBar – Slow control – many IOCs.



EPICS Tools and Applications

- StripTool is now a sine qua non of the control room
- Channel Archiver being mated to Oracle for speed and flexibility
- VDCT (newest Database Configuration Tool) now the preferred database tool.
- EDM (newest Display Manager) now available at SLAC for test – awaiting better X-Y plot
- Alarm Handler in use.
- Good core of EPICS people, unfortunately dwindling!
 - Steph going to SPEAR; Kukhee returns to Korea in June; Hiring freeze



Epics versions in use

- **PEPII Low Level RF – 3.13.1**
 - Remaining problem with one SNL program (never any time to adequately test)
- **Rest of applications – 3.13.2**
- **Next step – 3.13.6**
 - New directory structures in place
 - Mostly built
 - Will move the 3.13.2 applications first (soon!)
 - Will move LLRF (soon!) when:
 - PPC as VXI Slot 0 controller is ready
 - VME Allen Bradley scanner is the “last” problem
 - PPC needed for other projects too
 - Bugs can be removed (see above)



Where we want to be

- All current applications on 3.13.6
- Using 3.14 in development
 - Linux or Solaris “soft” IOCs
 - RTEMS is very alluring
- Using only VDCT
- Using EDM
 - Replace DM2K apps first, then DM/EDD



Why we're not there now

- 2 new RF stations coming online
- 4 new VXI modules for RF stations
- Big push for "8-pack" test
- Lagging infrastructure
- Still bogged down with VMS support
- INFRASTRUCTURE for Unix



Some other progress

- Dayle Kotturi (of Babar) and I have held two EPICS classes for Operations, SPEAR and LCLS folk.
- Operations actually building displays
- HW folk actually working with VME/VXI and understanding EPICS applicability
- Legacy system receiving less attention



AIDA

- Corba-based complex data transport
- Consolidates SLC, CA, SLC History, Channel Archiver, Oracle and XML data access
- Uses complex data dictionary for finding data servers by name
- Can transport complex data structures
- Necessary for moving application support to Unix from VMS
- We hope to have learned from the CDEV experience.



Channel Watcher

- Unix-based save/restore
- IOC-based restore (on reboot)
- Supports most save/restore formats
- Separate CWget, CWput functions to use all these formats
- Mike Zelazny will present separately

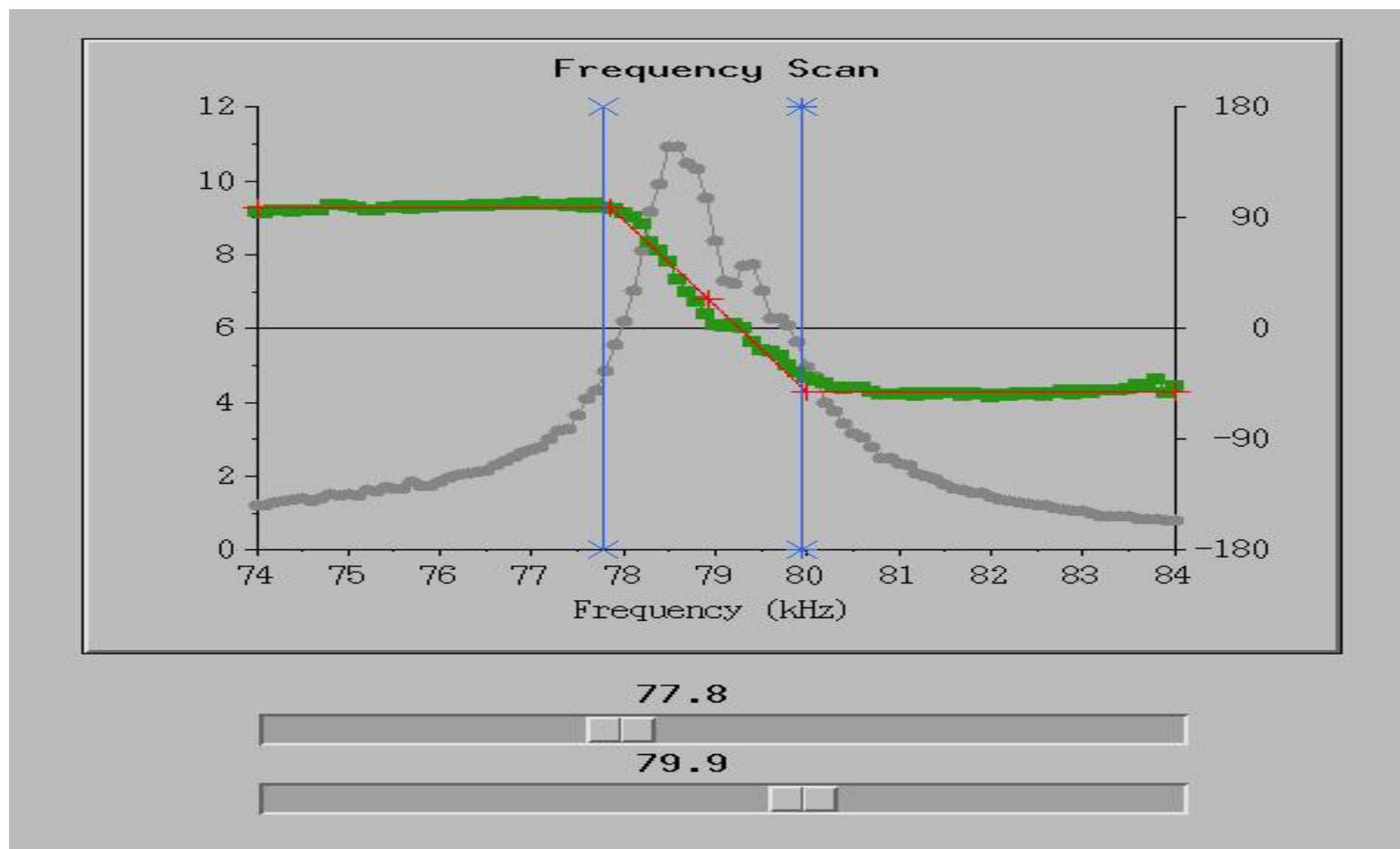


General Support Database

- Main table has record names
- Secondary table has any field in use
- Uses parsed .dbd file for EPICS field information
- All interested applications have their own secondary tables with application specific info
 - Channel Watcher, ALH, AIDA, Channel Archiver
- Will become master source



PEP-II Tune Tracker





Current ESD Epics Projects

- NLC 8-Pack Support (Due end of Autumn)
(well, maybe just after Christmas)
 - Next Step for the NLC Test Accelerator
 - New ADCs, RF Control
- PEP-II RF upgrade (Due end of Summer)
(oops, Christmas looks good here too)
 - More RF stations, enhanced VXI RF modules
- Infrastructure (Deployment, CVS, System support)
- General GPIB support (Wishlist)
 - Replacing HP-UX-based GPIB support



NLC Test Acc. Upgrade, 8-Pack

- Old system: Veetest & Labview
(1/2 Hertz)
- EPICS replacement
 - Three additional IOCS, now five
 - 60 Hz RF control
 - Scanning ADC fault data
 - Complex subroutine records



8-Pack Progress



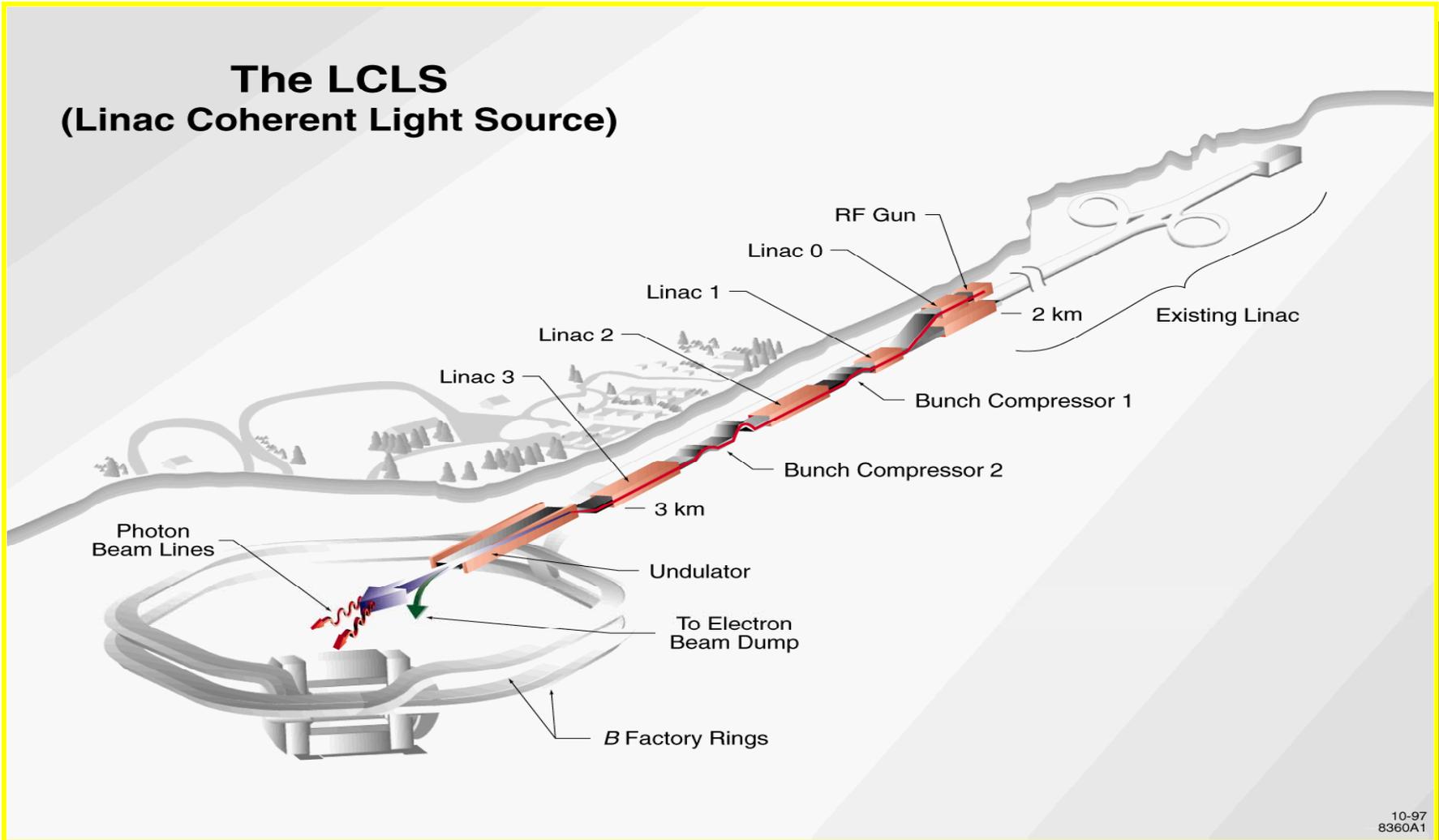


Linear Coherent Light Source

- “CD-1” now in hand
- SLAC/LLBL/LLNL/Argonne collaboration
- 270 Million dollar project
- Construction start 2006/ready 2008
 - When do we get first real money?
- EPICS to be used wherever reasonable



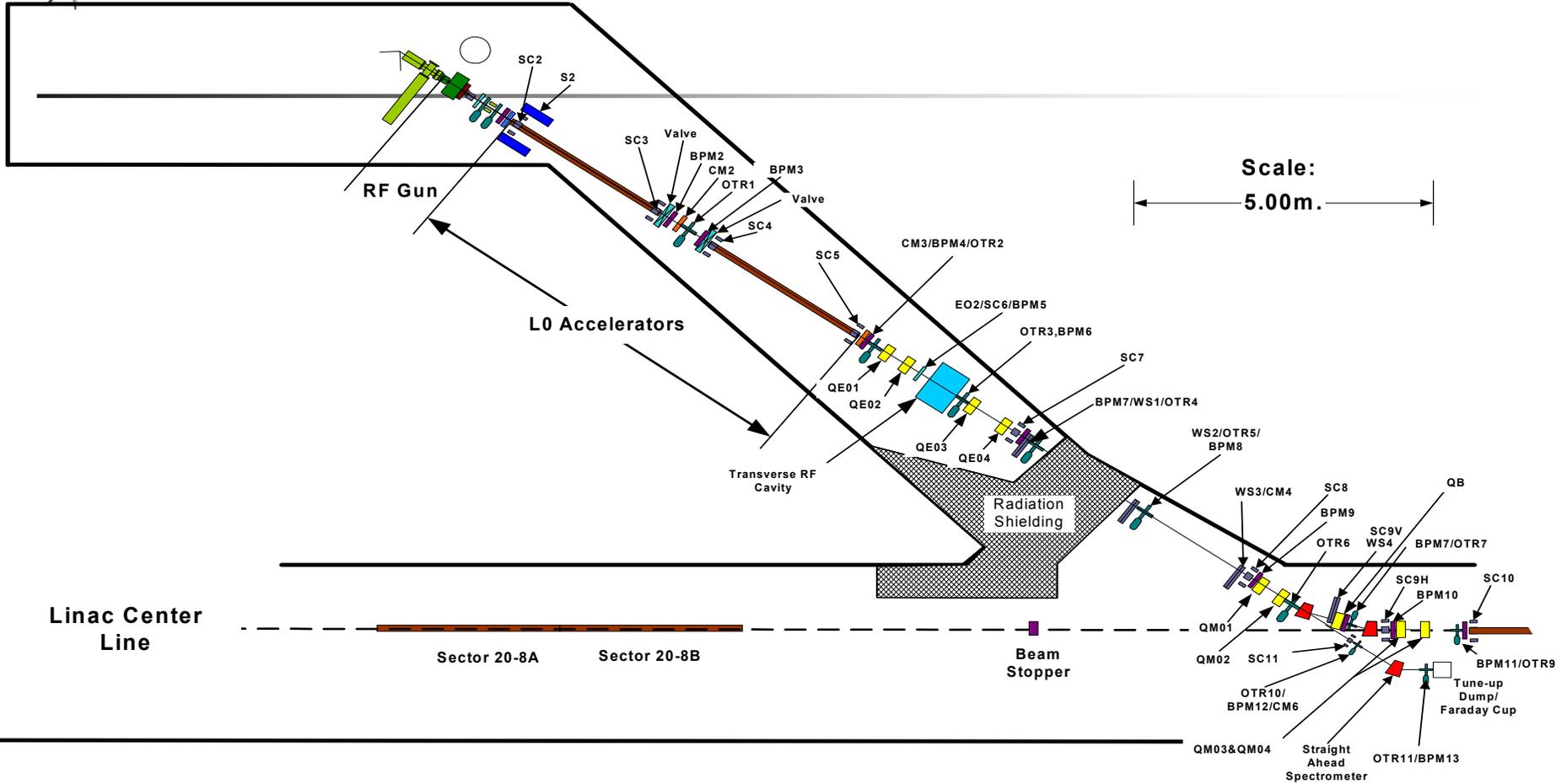
The LCLS (Linac Coherent Light Source)



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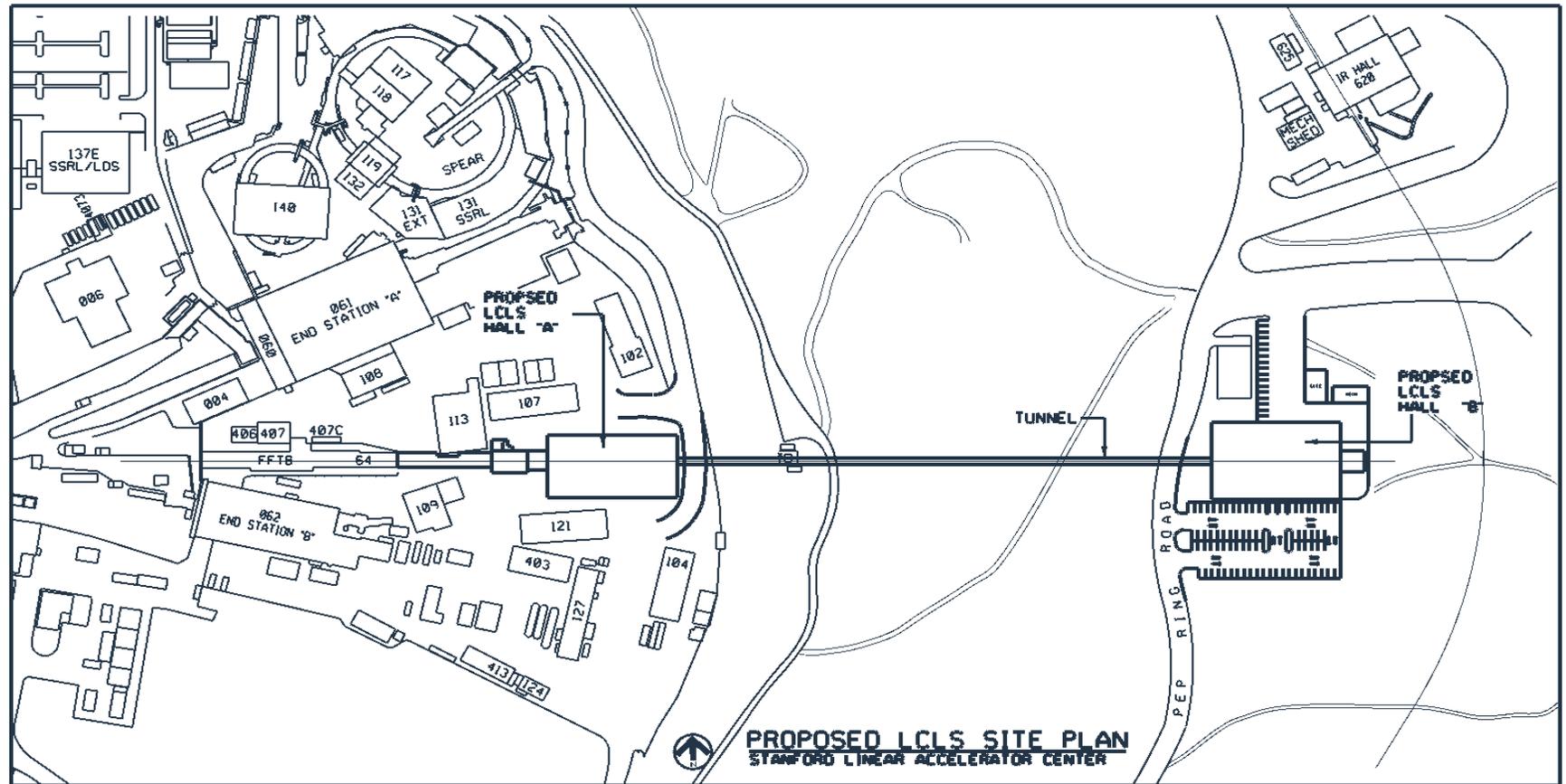
LCLS Injector Parts



D. Dowell
X2494
March 27, 2002



LCLS Site Plan





LCLS Undulator Controls

- Supplied by Argonne APS - lock, stock, and barrel
 - Employs and extends designs from LEUTL (Low Energy Undulator Test Line)
 - All EPICS, 16 VME IOCs
- Argonne and SLAC EPICS groups will coordinate efforts during the whole project
 - Timing
 - Machine Protection
 - Networking
 - Global Feedbacks
 - EPICS Details
 - VME Crates, CPU types
 - Naming Convention
 - Database and screen design
 - Commissioning and integration