

BCDA Activities – January '04

Highlights

- Upgraded XOR iocs': 1id, 3idc, 3idd, 4idc1, 4id. Hardware=MVME5100, Software=synApps_4_5
- Helped upgrade the Linux cluster to Red Hat 9.0 (from Red Hat 7.3). This has led to a lot of problems with building both the TomoMPI code and the CCD Image Server development.
- Moved the Sector 8ID EPICS applications from a local Linux workstation to the beams fileserver. This also required reconfiguring the ioc8ida1 crate to boot off of beams.
- Designed, installed and tested a new Epics IOC for the Sector 8's D-station. This station was using Spec to control a diamond monochromator. The epics IOC ioc8idd1 is now controlling the monochromator motors. This IOC also provides an interface to the monochromators encoders and the storage ring's 'Bunch Clock'. These items were not available under Spec.

Beamline/XOR Support

- To resolve some of the problems with TomoMPI and the Linux upgrade, upgraded the version of MPICH that we are using. This led to additional problems that are now mostly resolved. The TomoMPI system is functional once again.
- Developed a script to parse the TomoMPI log files to pull out performance statistics for the reconstruction cluster.
- Upgraded the drivers for the MicroImager CCD camera to a version supported on XP. The updated drivers are entirely different than the previous version so camera support for the MicroImager II had to be redeveloped from scratch.
- Assisted Joseph Maj with a CCD camera problem in to topography lab
- Worked on implementing and learning how to use the EPICS VI for LabView for eventual use with the Nano-Probe.
- Completed development work on Physik Instrumente (PI) C-844 motor controller device driver. Installing and testing it on sector 2 ID.
- Completed the upgrade of IOC2IDDF started by Chris Roehrig from mv172/synApps R4.4 to mv2700/synApps R4.5.
- Installed DirectNet serial PLC interface driver into the Sector 8ID A-station crate. This crate will be used to provide an EPICS based interface to the 8ID EPS PLC.
- Helped install and debug the first network terminal server at Sector 8. The terminal server is being used to access ioc8idd1's debug port.
- MU-CAT Joerger scaler: verified suspected faulty operation
- Diagnosed and fixed encoder problem in sec.8 (IMM-CAT)
- Added 24 motors (3 OMS boards & software) to ioc1idb
- Added 16 motors (2 OMS boards & software) to ioc3idb

- Added Xycom 240 to ioc2idd, installed software for MCL NanoDrive, tested system
- Designed, prototyped and tested an analog multiplier/divider for Dan Legnini, Sec. 2. For real-time math on detector signals during fly scans.
- Held first “XOR Computer Interest Group” meeting to discuss computing and controls issues with interested parties.
- Diagnosed string-expression problem on 4id: and found a workaround for what looks like a problem in base: a integer field of an mbbo record, retrieved as a string via an NPP link, looks different from the same value retrieved as a string via a CP link.
- Diagnosed miscellaneous boot problems for HP-CAT.
- Showed Ning Lei (CARS) how to build a programmable delay with sCalcout records.
- Modified save-restore to save files with 640 permissions, for Dohn Arms (MHATT)
- Helped Dave Reid (U. Wash Med. Center) write GPIB support using the GPIB_OI_block database.

General

- Began investigating RS-232 hardware handshaking support in the IPAC module with Andrew Johnson; no time to resolve this issue at the moment.
- Released motor record R4.9, which contains three new device drivers contributed by three different developers.
- Acquired a Tracewell VME64 desktop crate and tested the standard BCDA beamline IOC components for compatibility
- Modified iocxxx/st.cmd for standard Keithley database & state notation program. Updated CVS repository (3.14 and 3.13-branch)
- Built EPICS 3.14.4 Extensions Tools on beams server. After few iterations of minor changes in configuration and make files, the standard EPICS 3.14.4 Extensions Tools have been successfully built on Beams Server (except that 'ar/ar' subdirectory which uses OpenWindows XView which is no longer supported for solaris 9). Only minor modifications were needed for building medm, SDDS, StripTool.
- Found out that remote login into beams server from UNIX work stations causes problems running IDL widget programs correctly. This problem has been reported to the system administrators.
- Got an example application running on the low cost ioc, AKA the EPICS brick.
- Update, test, and document 3.13-compatible synApps for distribution as synApps 4.6
- Split the synApps 5.0 std module into six modules: calc, scan, autosave, vme, optics, and std.
- Diagnosed and fixed dac128V bind problem in synApps_4_5 on beams.
- Put Elcomat autocollimator support into synApps_4_4.
- Members of the group attended Technical Workshop for Protein Crystallography CATs.

- Worked with Mark Rivers to compile and check a table of VME addresses, address spaces, and interrupt vectors for synApps 4.6. Moved the selection of objects from base, and the address and interrupt-vector selection (module_types.c) from the std module to the user module, xxx.
- Helped Peter Siddons (BNL-NSLS) with his development of a "credit-card ioc".
- Moved the synApps build from the utils module to config, and simplified the selection of module versions.

Data Visualization

SCANSEE

- Modified colarbar.pro to replace execute with call_procedure
- Developed efficient mda 3D data reader. It improves the speed of extracting 3D mda data by 30% (larger 3D scan more time saved)
- Developed the sscan.pro to provide simple menu and push button widgets to extract and display 1D/2D/3D mda data, provide info window to display the scan data struct, provide efficient mda file accessing and provide access to IDL prompt, etc...
- Provided UNIX script sscan for easy startup of IDL program sscan.pro
- Worked on scanSee R3.1 to replace the read_scan function by the new efficient version from the sscan.pro
- Prepared sscan.sav from scanSee R3.1 for IDLVM 6.0
- Modify UNIX scripts; catcher(R3.0), scanSee(R3.1), ezcaidl_setup such that they will run with EPICS 3.13 or EPICS 3.14
- Installed and tested new version of idlvm, scanSee.R3.1, catcher.R3.0 on UNIX and window system
- Prepared script scanSee.R3.1 to accommodate scan record version 5.18/5.18 tested on beams server with EPICS 3.13 and EPICS3.14

IDLVM UPDATED

- Fixed bugs and generated new version of catcher.sav, sscan.sav, viewer.sav
- Installed new version of viewer.sav, catcher.sav, sscan.sav on beams server
- Updated the WIN PC IDLsave.zip with new catcher, viewer and sscan save files
- Modified idlvm on beams server for running with EPICS3.13/EPICS3.14
- Tested and bug fixed for running catcher, sscan for solaris and solaris-sparc on beams server

