BCDA Activities – February '04

Highlights

SynApps R4.6 has been released. This is compatible with EPICS 3.13.9. One further release will be made with 3.13.x compatibility, incorporating some things we didn't have time to incorporate in this release.

Added additional functionality to the Sector 8-ID D Station EPICS IOC. IMM-CAT now has access to a Bunch Clock Generator and storage ring information from a Machine Status Link interface card. Also installed and configured J. Lang's softMotor databases and MEDM screens to improve the SPEC - EPICS interface in the D-Station.

Held a meeting with APS based developers to set synApps road map for next six months.

Beamline/XOR Support

XOR-2ID:
Modified TomoMPI to handle the acquisition and use of Dark Fields more efficiently. Started to add error messages to the cluster's log files in a way that should make it more efficient to track down problems in the cluster.

Modified design for 4-channel analog divider for Dan Legnini. Tested basic functionality. Was used it in experiment and reportedly worked well. He would like a version with more (12?) channels.

Fixed 2xfm's TCA support

XOR-3ID:
Worked out issues with soft motor setup and operation. Worked with J. Lang and users.

Assisted and consulted with newcomer Yuming Xiao on accessing catcher data files between beams/oxygen servers.

XOR-4ID:
Began work on superconducting magnet power supply controller for Dave Keavney.

Researched mbuf-starvation problem experienced by 4idc.

MHATT:
Replaced brake database with .PREM and .POST field of motor record. Tested.

XOR-8ID:

Helped Sector 8 trouble shoot a few camera issues. A bug with tracking the frame start time was fixed in the CCD Image Server. A different problem whereby images were mysteriously flipped was not resolved but suspected to be within the camera itself.

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Sector 8-ID will convert the I-Station from SPEC to EPICS during the April/May shutdown. Meetings with A. Sandy and other from IMM-CAT has resulted in a complete survey of the instruments in the I-Station and have matched them against existing EPICS support. Most instruments are already supported in EPICS.

XOR-BESSRC:
Constructed 8 motor cables at short notice.

HP-CAT :
Continued working with HP-CAT on the "MR Closed loop bug". Resolving this problem has become dependent on HP-CAT's access to the /epicscat filesystem on their gateway.

PNC:
Provided software and tech support for the JY triax optical spectrometer. Resolved RS-232 serial port problem in PNC-CAT. The problem was due to the use of incompatible support modules; mpf R1-10 with ip R1-2.

GMCA:
Solved a VME-Bus interface problem with the Turbo PMAC2 motor controller from Delta Tau. Oleg Makarovg from GM/CA CAT reported that the new PMAC VME board was causing other VME boards in the crate to stop working. Using a bus analyzer I determined that the PMAC was not completing the Interrupt Daisy Chain. Delta Tau is sending a firmware upgrade to fix the problem.

NANO-CAT:
Spent some time learning about the NanoCat beamline design and goals. Started looking into specifics about control system design for NanoCat.

Continued to work on supporting Labview to EPICS integration for the nanoprobe. Got the ActiveX PCAS working and developed a simple “motor record” interface to serve as an example of how the nanoprobe motors should be set up to work with EPICS. Took the first steps in moving the real motors.

XOR-LABS:
Assisted Joe Maj from Metrology Lab with displaying CCD Image Files with HDF B browser on PC.

General

Posted std R1.4, ip R1.4, and synApps R4.6 on the BCDA web pages.

Started development of next version of CCD Image Server.

Got Igor to read the HDF files from the CCD Image Server using native Igor routines. Still trying to make this user friendly enough the user doesn't need to know the details of the HDF format.

Revived old PCAS program to control the Aerotech U500 motor controller. This program hadn't been used in several years. It uses the PCAS to fake a minimal "motor record" so the U500 stages can be controlled by standard EPICS tools.

Installed and notified users about availability of IDLVM MCA on beams server.

Downloaded viewer and scanSee onto Linux system, and tested on Linux as post scan visualization tools, they all appeared to work fine.

Completed testing and debugging RS-232 hardware handshaking support in the IPAC module.

Ported MicroMo and Micos motor record device drivers to R3.14.x.
Working to design a beamline hardware database. We are attempting to integrate the beamline hardware catalog with the one currently being implemented by the ASD Controls Group. Have met with D. Dohan in order to be a recognized web database program developer with access to his CVS repository.

Devices Database: Added beamline devices to controls group spreadsheet.

Manually edited synApps CVS repository so that revision history
is maintained through the split of std into six modules.

Fixed 3-element detector displays in synApps_4_5 mca5-4 module

Updated the genSub record to V1-5 in synApps R4.6

Updated the sequencer in synApps/support (CVS trunk -- the 3.14 stuff)

Updated synApps/support with mpfosi R2.4.1, and patched that module
to build under ipac R2.6

Got devScaler_VS (new device support for the Joerger VS64 scaler) working
in the synApps 3_13 branch.

Updated scalerRecord documentation.

Worked out vxStats build problems with Mark Rivers.

sscanRecord, saveData fixes for long-int number of data points
Demonstrated scan acquiring 64000 data points, but only have enough memory to demonstrate 33000 stored by saveData. 'mdals' core dumps with more than 32767 (max positive short int) data points.

Booted mv2700 with an mv162 remote processor (IP-carrier), both running synApps_5_0. Per Andrew's docs, to convert an mv162 that used to run with another mv16x processor to run with an mv2700, you have to change

```
   boot device         : sm=0x80000600
to
   boot device         : sm=0x80004100
```

Helped Pete Siddons (NSLS) with EPICS development for his 400-element Si detector.

Fixed problem (gdct artifact) in Spherical Grating Monochromator database

Looked for problems initializing the sseq record under Linux, reported by Mark Rivers. I can't reproduce the problem under vxWorks, but did clean up an odd compiler warning in the code. A guy at BESSY saw something similar with the AO record, so maybe the problem is not in sseq.

Eric Norum has completed cod for the low cost ioc. Mark Rivers is now testing its suitability as a detector controller.

Data Visualization

HDFB BROWSER

Developed IDL/HDFB browser for displaying any generic HDF or NEXUS SDS file.

Set query SDS dialog as default for NEXUS/HDF file, now when a file selected the SDS data selection dialog pops up right away

Upgrade hdfb.pro user interface for very flexible and efficient file selection
Prepared download files idl.zip, scanSee.zip packages for window system

Modified plot2d.pro to add the i,j,Z event, which allows the user to modify new value at i,j position.

Modified plot2d.txt report format as nx->ny xdisplayfile width can not exceed pre determined length.

Added ZOOM Box ROI to plot2d program which pops up zoom ROI with plot2d call.

Added my_box_cursor.pro to Makefile.Host which allows ZOOM box option to any other IDL program.

Added file existence check for user entered filename event

Test for Smither's NEXUS/HDF image files saved by CCD software created by Brian Tieman.

Added simple online help for SDS HDF Query.

Put all updated IDL programs into CVS repository.

Asked Janet Anderson to install all the IDL program with EPICS base3.14.3

Modified image2d.pro to allow query of image values for the zoom ROI
TV,plot2d,surface for zoom ROI allowed.

Identified a bug in IDL xdisplayfile which failed to display large text file on solaris systems, report the problem to RSI technical support

SSCAN & SCANSEE R3.1
Obtained feedback from Dan Legnini, sscan is doing fine with after scan data, new read_scan routine has problem with realtime scanning, some new panimage feature is requested for fly scan.

Investigated/work on the new read_scan reader with user2ide's 2xfm bed to identify read errors during realtime scanning.