

BCDA Activities - March '04

Highlights

SynApps 5.0 is now available This is our EPICS beamline controls toolkit. This is the first release compatible with EPICS 3.14

Beamline/XOR Support

XOR-1ID:

Modified manual stepper motor driver. Tested and verified operation on several motors in sector 1.

Created a simple line-driver circuit for motor step pulses to drive Joerger scaler inputs (50-ohm).

Diagnosed problem with ioc1id's customized scaler display.

XOR-Sector 2:

Added Acromag Digital I/O to 2xfm system for pre-move/post-move ,daq triggering (enhancing fly scanning).

Provided RS-485 solution for multiple temperature controllers.

Made some modifications to the TomoMPI system. These modifications allow for a user selectable offset for the rotation axis.

Discussed with Dan Legnini and Stefan Vogt about problems they encountered in scanSee R3.1 and new features they desired

Proposed and requested some glue electronics (one TTL chip in a box) as a quick solution for a synchronization problem in 2xfm's fly-scan system. Haven't implemented the solution yet. (Still waiting for the box.)

XOR-3ID:

Troubleshoot driver and cabling problems for new Kohzu drives.

Customized Kohzu driver system by swapping out 2 of the drives for special low current drives. Tested and investigated heat issues.

XOR-4ID:

Upgraded ioc2iddx to MVME5100 and synApps_4_5.

Installed and tested Janis 7T superconducting magnet EPICS support.

Trying to figure out ioc4idc1's problem with mbufs.

Added 10 more transform records to ioc4idc1. Made the option for 20 records standard.

XOR-Sector 8ID

Added remote shutter control capability to Sector 8-ID at the request of Alec Sandy. This involved installing and testing the EPICS interface to the BCDA Remote Shutter Control(RSC) panel. The RSC panel was installed and is now capable of controlling 8-ID's front-end shutters thru MEDM screens.

The conversion of the Sector 8-ID I-Station from SPEC to EPICS is progressing. The EPICS IOC for this station has been assembled and I am starting to develop it's startup command file. During the April/May shutdown this IOC will be moved into the I-Station and motor/instrument testing can begin.

Integrated the NanoProbe Labview controlled motors into EPICS and helped prepare entire nanoprobe control system for operation in sector 8.

GSECARS Sector 13

Debugging a VMEbus problem related to having two IP carriers (SBS VIPC616) in the same VME rack. This problem was reported by M. Rivers but may be related to an issue that B. Laird and M. Smith are currently working on. I have a new model of the SBS IP carrier (VIPC626) to test also.

HP-CAT Sector 16

Continuing to work with HP-CAT to build and boot a test IOC using the gateway fileserver. Solving HP-CAT's "MR Closed loop bug" has become dependent on them using the gateway fileserver.

BIO-CAT Sector 18:

Finished fabrication and testing of servomotor test system.
Tested on user's system.

GMCA-CAT:

Helped troubleshoot and diagnose EPICS/MPF serial port issues

NANO-CAT:

Researched, planned for, and held the first of many control system planning meetings for NanoCAT.

UNICAT Sector 33

Spent some time to reconstruct some of their tomography data on the reconstruction cluster. This was surprisingly straight forward.

UNI-CAT can now build and boot IOC's using pre-installed components (i.e., Tornado 2.0.2 -> EPICS base R3.13.9 -> synApps R4.6) from their gateway fileserver. This has been successfully done with a test IOC; the next step is to convert a UNI-CAT beamline IOC to the gateway fileserver.

XOR

Helped Metrology lab user in accessing idlvm on oxygen server when they have problem access the IDL license

General

Completed a beta version of the Beamline User interface to the APS hardware database. This database was developed by the Controls group but BCDA is now adding information to it.

Spent a little time on trying to make better HDF support for IGOR. I've been able to create a few handy Igor routines to mine HDF files in a human readable way using the very poor Igor XOP for HDF. Igor wants to treat HDF as a flat file, which is an issue. It might be better to write our own XOP...

Hooked up test hardware for the CCD Image Server after moving my office. Used the test hardware to track and fix a few minor bugs. Started working on new features for next version.

Helped with integration of peak locating class into Visual Basic for Lahsen Assoufid and Micheal Bray.

Set up and got an eBrick running. Spent some time researching various hardware that could be plugged into and run from an eBrick.

Installed cross-gcc-2.7.2-patched and synApps R4.6 on the gateway fileserver.

Released motor record R5.3; the latest R3.14.x compatible version of the motor record. This release contains:

- several record level bug fixes.
- an updated IMS MDrive driver.
- a bug fix for the OMS VME58 Servo Limit Switch problem.
- supports opposite signs for encoder (ERES) and motor (MRES) resolutions.
- a bug fix for PID parameter initialization.
- a redefined status update (STUP) field

Released motor record R4.9.1; a R3.13.x compatible "bug fix only" update.

Began evaluation of OMS's replacement for the VME58; i.e., MAXv.

Met with Wind River Systems on software licensing.

SCANSEE – a number of important problems have been fixed and new features implemented

HDFB - a mouse driven HDF browser has been upgraded and modified, and a user's guide has been written. This is available to run on the IDL virtual machine.

CAGET/CAPUT - modified to run with excas server

Installed and demo for J Maj on how to use HDFB on his PC and how to generate image file for easy image file transfer for his users

Prepared docs for synApps 5.0

Developed scanParms support to run two-positioner 1D scans

Reviewed paper for Review of Scientific Instruments

Converted synApps_4.6 version of interp.c (array interpolation) to EPICS 3.14, and added it to synApps_5.0. The newer version does spline and polynomial interpolation

Tagged and branched synApps_5_0, committed the release distribution to cvs.

Added array support to save_restore. Also added ability to restore DBF_NOACCESS scalar fields (which dbStaticLib wouldn't touch). Both types of fields can't be restored until pass 1 (after initDatabase).

Working with Eric Boucher on a new version of the sscan record.

Responded to request for information from National Synchrotron Radiation Research Center in Taiwan about effects of top-up operation on beamline data acquisition.

Agreed to participate in the Australian Research Networks Program entitled "Molecular and Material Structure Network", intended to foster remote access and related capabilities for synchrotron beamlines, and other facilities with similar requirements.