SVT Slow Controls

SVT DAQ EPICS control

SVT EPICS Instructions

SVT DAQ channel map

Link to excel file.

EPICS MPOD Driver Installation

These notes are from an installation by Pelle and Hovanes on hpstracker machine in group C at SLAC.

The installation is to run the hvCaenApp. There are many dependencies since it contains support to control different types of hardware.

Started on hpstracker with this

$ rpm -qa
net-snmp-libs-5.3.2.2-20.el5
net-snmp-libs-5.3.2.2-20.el5

Install needed net-snmp devel libraries.

Copy epics layer snmp-nscl-1.0.RC6.tgz from jlab machine to /u1/packages

Install net-snmp SNMP layer manually, not found by yum, in /u1/packages/net-snmp

Problem building /u1/packages/support/snmp-nscl-1.0.RC6.

Had to manually include the net-snmp files in snmpApp/src/Makefile by changing
USR_CFLAGS += `net-snmp-config --cflags`
to
USR_INCLUDES += -I/usr/local/include -D_LARGEFILE_SOURCE -D_FILE_OFFSET_BITS=64 -I/usr/include
/gdbm -I/usr/lib64/perl5/5.8.8/x86_64-linux-thread-multi/CORE -I. -I/u1/packages/net-snmp/builds/net-snmp-5.7.2.1
/include

Note that this means that the other cflags are are not given to the compiler but it seems to work. Not clear why this workaround was needed.

In order to compile the needed libraries we needed to add re2c. Get it from the epel repo rpm copied from Hovanes:

epel-release-5-4.noarch.rpm
sudo rpm -ivh epel-release-5-4.noarch.rpm
sudo yum install re2c

Now install the support libraries in /u1/packages/support/.

Install these in order, updating the configure/RELEASE information to my installation for each one:

drwxrwxr-x 10 tracker   55   4096 Aug 13 07:42 ipac-2.11/

drwxr-xr-x 12 tracker root   4096 Aug 13 07:50 seq-2.1.12/

drwxrwsr-x 24 tracker   204   4096 Aug 13 07:55 asyn4-21/

drwxrwxr-x 8 tracker   104   4096 Aug 13 07:58 busy-1-6/

drwxrwxr-x 8 tracker   104   4096 Aug 13 08:00 sscan-2-9/

drwxrwxr-x 10 tracker   104   4096 Aug 13 08:03 std-3-2/

drwxrwxr-x 10 tracker   104   4096 Aug 13 08:04 autosave-5-1/

drwxrwxr-x 9 tracker   104   4096 Aug 13 08:06 calc-3-2/

There are two device drivers that needs to be installed. Copy this two App drivers from jlab.

LVMPODApp.tgz
HVCAENx527App.tgz

Install these in: /home/tracker/pelle/epics/drivers

Add to drivers/configure/RELEASE
IPAC=$(EPICS_SUPPORT)/ipac-2.11
SEQ=$(EPICS_SUPPORT)/seq-2.1.12
ASYN=$(EPICS_SUPPORT)/asyn4-21
BUSY=$(EPICS_SUPPORT)/busy-1-6
SSCAN=$(EPICS_SUPPORT)/sscan-2-9
STD=$(EPICS_SUPPORT)/std-3-2
AUTOSAVE=$(EPICS_SUPPORT)/autosave-5-1
CALC=$(EPICS_SUPPORT)/calc-3-2

Untar and compile LVMPODApp.tgz

Untar HVCAENx527App.tgz

To install HVCAENx527App.tgz we need to add support for caen. Copy binaries caen.tgz from Hovanes to /u1/packages/caen.

Go into the drivers/HVCAENx527App/src/ and update Makefile with:
hscaenet_DIR   += /u1/packages/caen/sy1527/lib/linux-x86_64
caenhvwrapper_DIR += /u1/packages/caen/sy1527/lib/linux-x86_64

Compile HVCAENx527App

Now copy the hvCaenApp to did in parallel to my App: /home/tracker/pelle/epics/example/hvCaenApp

Update the pelle/epics/example/configure/RELEASE file in my example by adding:

EPICS_SUPPORT=/u1/packages/support
DEVSNMP=$(EPICS_SUPPORT)/snmp-nscl-1.0.RC6
IPAC=$(EPICS_SUPPORT)/ipac-2.11
SEQ=$(EPICS_SUPPORT)/seq-2.1.12
ASYN=$(EPICS_SUPPORT)/asyn4-21
BUSY=$(EPICS_SUPPORT)/busy-1-6
SSCAN=$(EPICS_SUPPORT)/sscan-2-9
STD=$(EPICS_SUPPORT)/std-3-2
AUTOSAVE=$(EPICS_SUPPORT)/autosave-5-1
CALC=$(EPICS_SUPPORT)/calc-3-2
EPICS_DRIVERS=/home/tracker/pelle/epics/drivers

do make clean; make in pelle/epics/example

Then go into hvCaenApp/src/Makefile and change:

#USR_INCLUDES += -I/apps/Trolltech/Qt/include

/

to

USR_INCLUDES += -I$(QTDIR)/include

#hscaenet_DIR   += $(CLAS)/clon/src/caen/CAENHVControlSoftware-1.1.2

/lib

#caenhvwrapper_DIR += $(CLAS)/clon/src/caen/CAENHVControlSoftware-1.1.2

/lib

#QtSql_DIR += /apps/Trolltech/Qt/lib

/

to

hscaenet_DIR   += /u1/packages/caen/sy1527/lib/linux-x86_64

caenhvwrapper_DIR += /u1/packages/caen/sy1527/lib/linux-x86_64

QtSql_DIR += $(QTDIR)/lib

Note, need QT 4.7, failed on QtSql for default QT-3.3

Need to set new env variable to compile:

setenv EPICSB_DRIVERS /home/tracker/pelle/epics/drivers

Compile hvCaenApp

Got compiler error and had to change casting issue on this compiler in src/DetChannelsWaveform.cc.

That fixed it.

Create the configure file using a dummy example (there is a way to do this without creating a complete example but this works):

makeBaseApp.pl -b $EPICS_BASE -t example

Edit configure/RELEASE by adding:

EPICS_SUPPORT=/u1/packages/support

DEVSNMP=$(EPICS_SUPPORT)/snmp-nscl-1.0.RC6

Then compile: make clean; make

Make a new IOC directory for the hvCaen App from /home/tracker/pelle/epics/example/

makeBaseApp.pl -b $EPICS_BASE -t ioc -i (name: iochvCaen)

cd iocBoot/iochvCaen/

copy svt-voltage.cmd there and run it.

For now it fails because MPOD defined in the sqlite db file is not connected.

After a successful installation we should have:

After loading svt-voltage.cmf should have MPOD variables:

B1-1-TOP:X

Label explanation:

B1-1-TOP:912 -> slot 9 channel 12 in MPOD

B1-1-TOP is the label for the crate.

There is also channels labeled according to hps for FEB and HV power which is what is used for control in GUIs and what not.