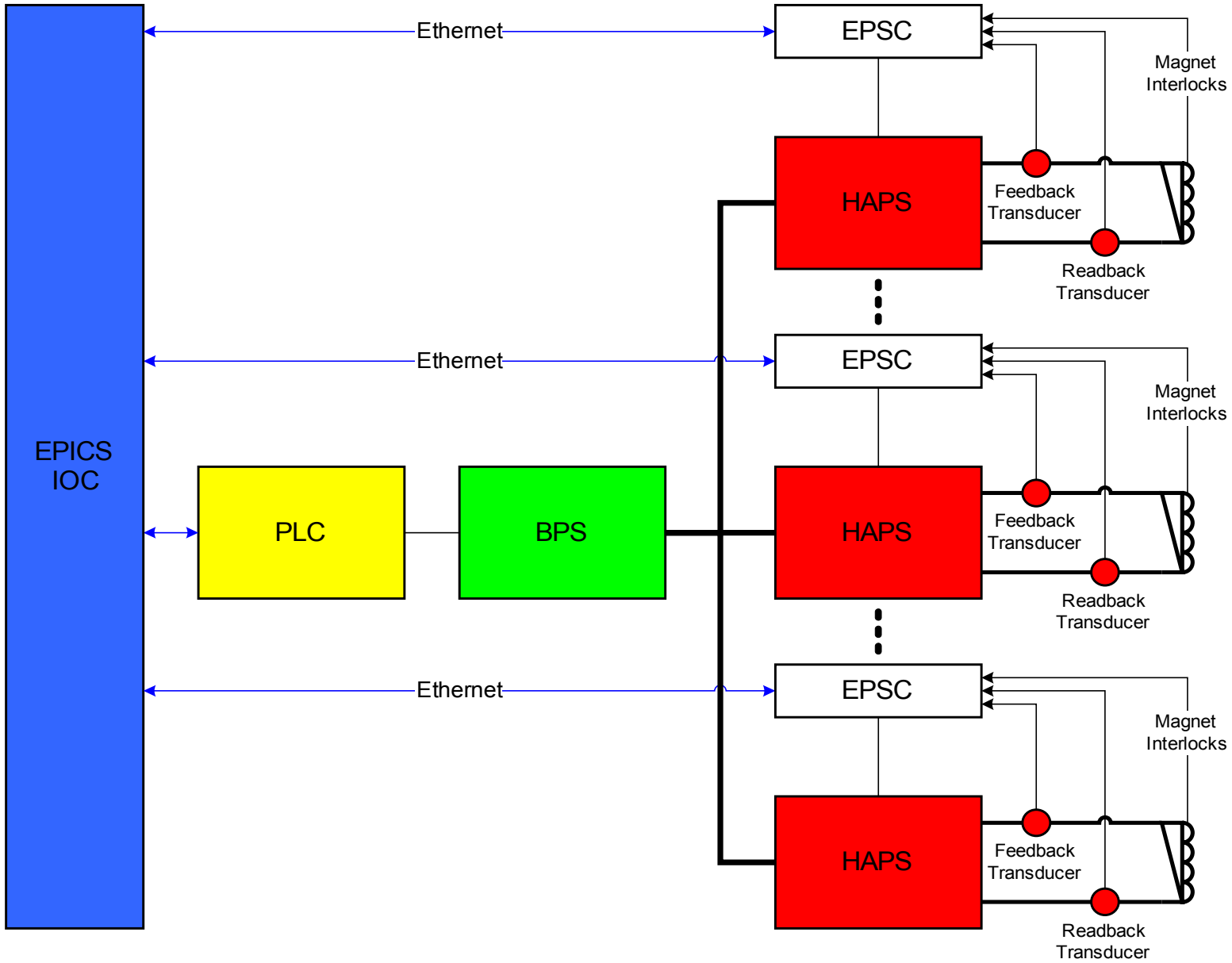
HAPS Controls

Glen White

ATF2 Software Review Workshop, LAL, June 2008

Layout of Controls

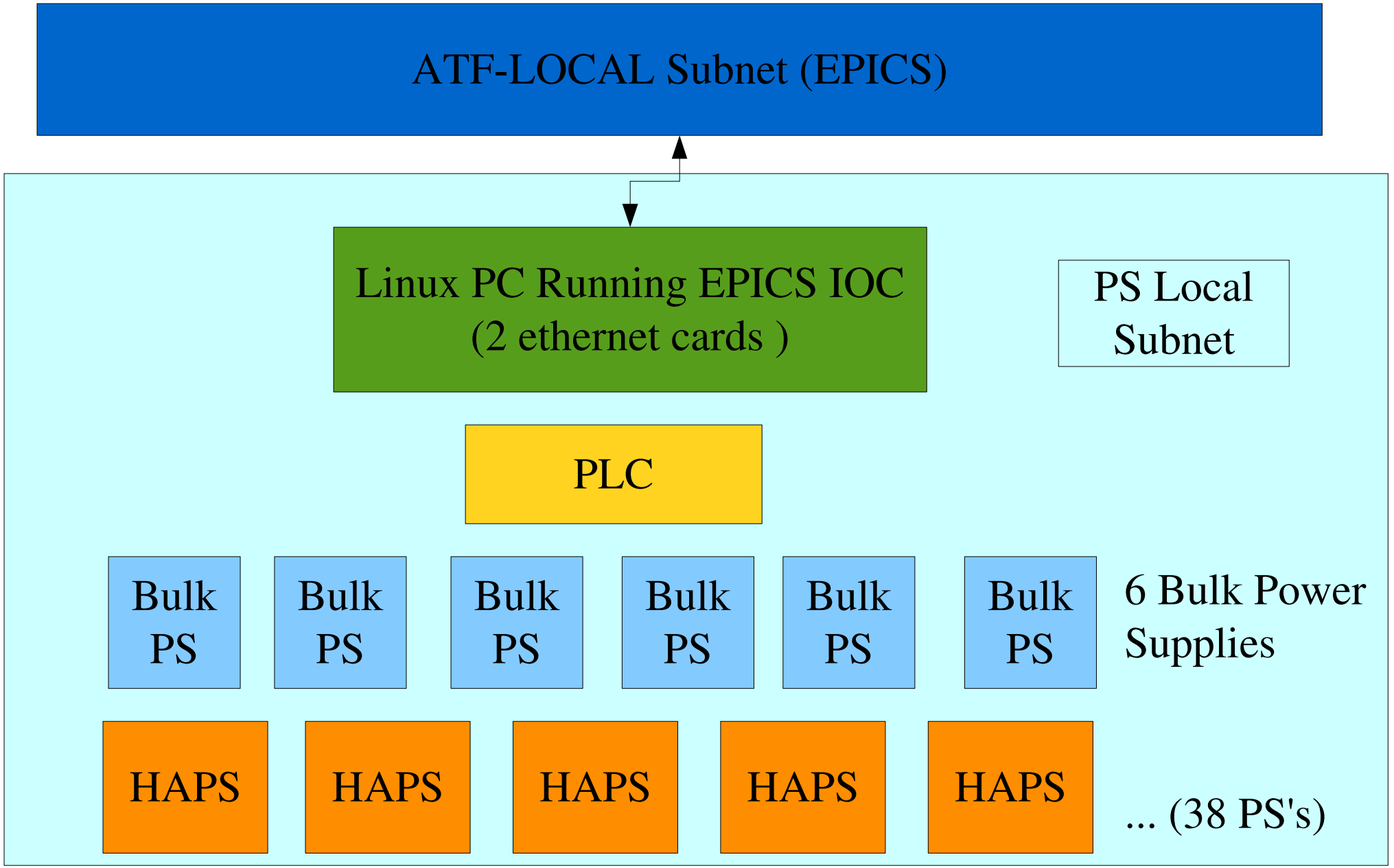


HAPS at ATF2

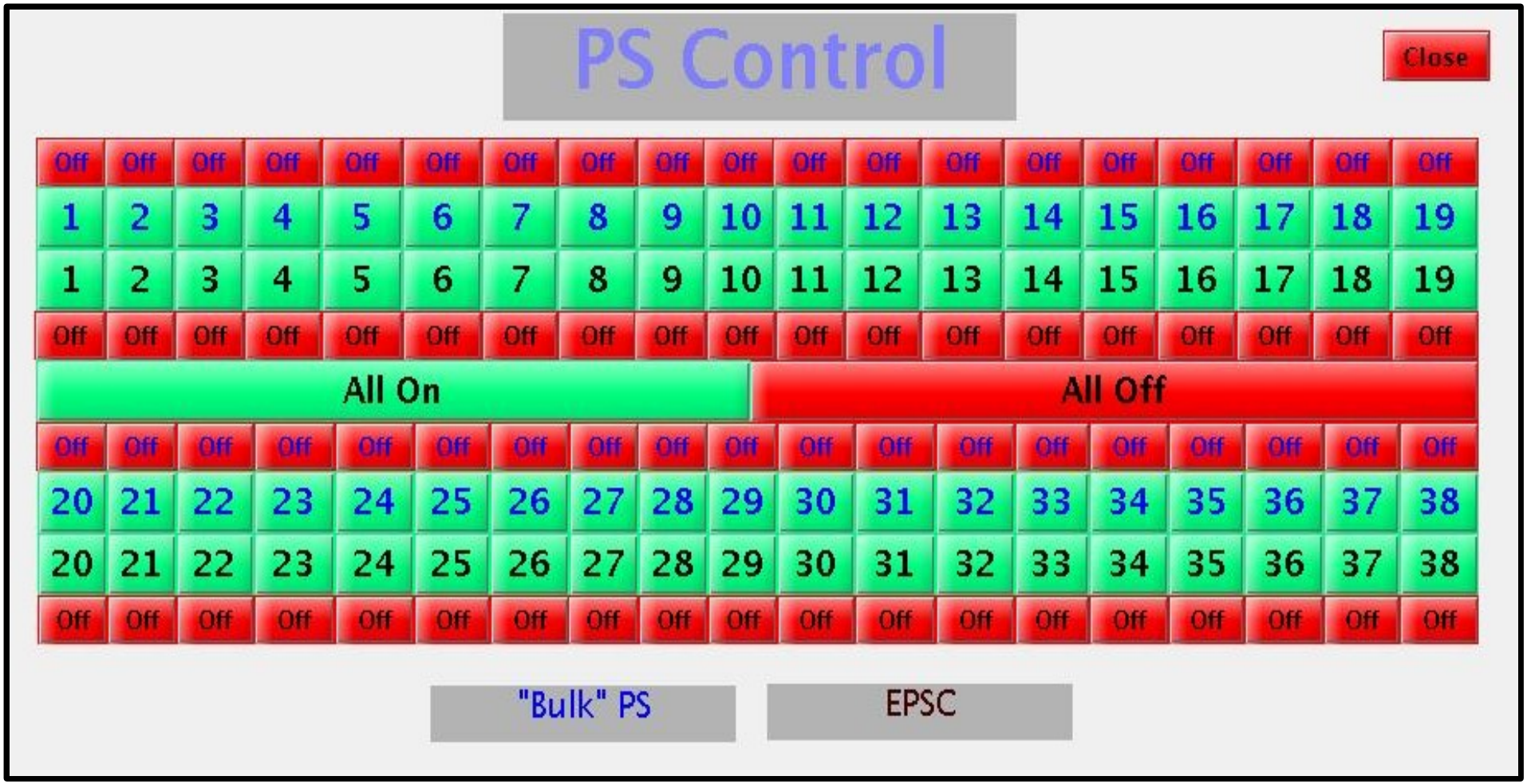
Controls Summary

- Software written to control and monitor Bulk Power Supplies and EPSC controllers.
- Bulk PS's controlled through Allen-Bradley PLC interface
  - Using configured EPICS driver and database from R. Wright, K. Kasemir (SNS) over tcp/ip to PLC (ETHER_IP EPICS module).
- Control and monitoring of redundant HAPS modules through EPSC using purpose-written EPICS driver, database and Matlab/LabCA-based panels.
  - Driver built using ASYN driver framework interacting to EPSC hardware over tcp/ip.
- All controlled from single 'soft' EPICS IOC installed on a standard PC running linux.

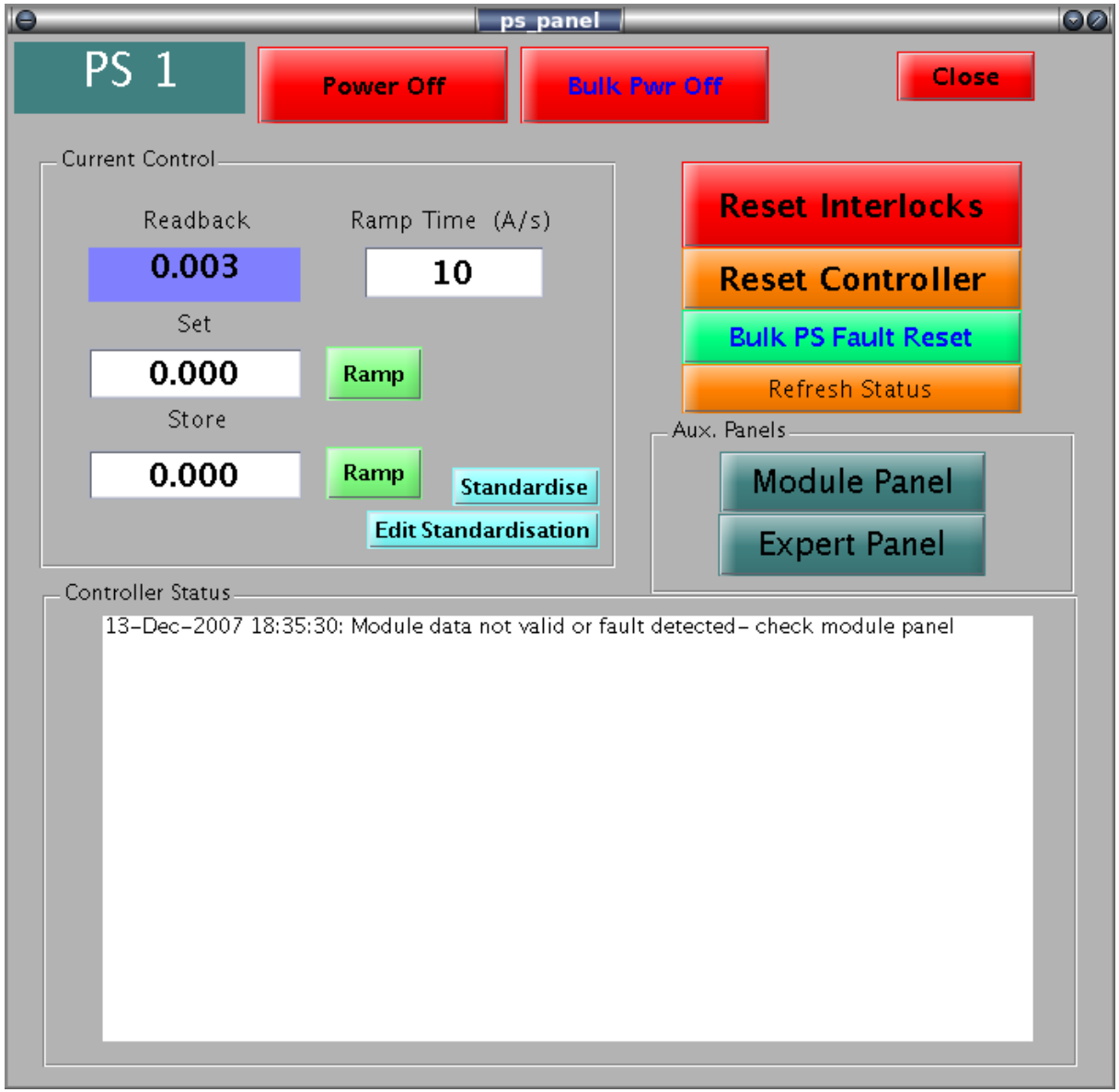
HAPS Controls at ATF2



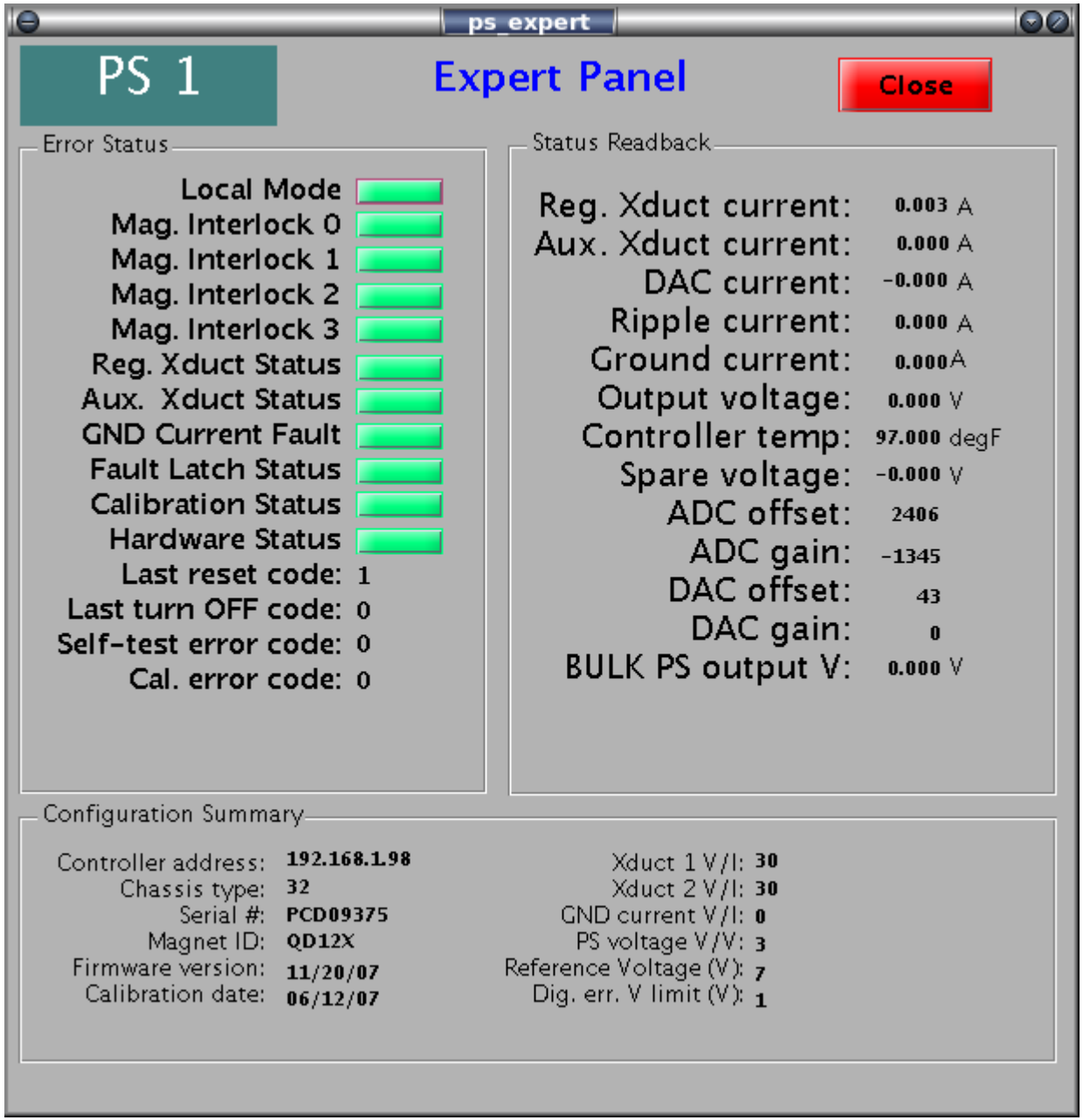
Main Panel


PS Control
Close
Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off
All On
All Off
Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off
20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38
20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38
Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off Off
"Bulk" PS
EPSC

EPSC/Bulk PS Panel



Expert Panel



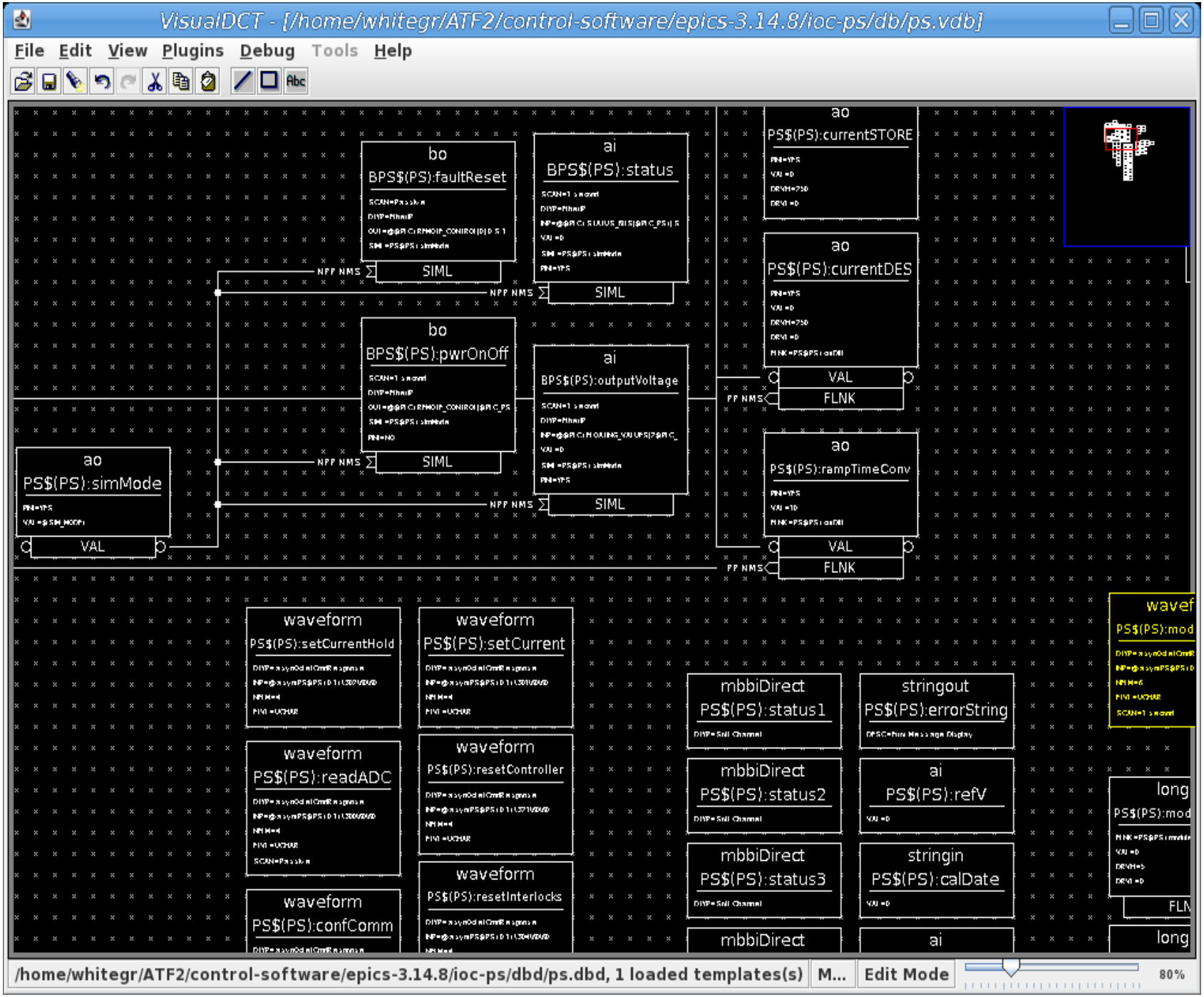
Power Modules Panel

Documentation

- Documentation on SLAC wiki
- https://confluence.slac.stanford.edu/display/ATF/ATF2+Magnet+Power+Supplies
- List of PV's available and use instructions
- Instructions for test GUI panels
- Configuration data
- Hardware info
- Expert documentation (EPSC server info, PLC documentation etc)
- Software CVS repository info and installation instructions

Simulation Mode

- EPICS PV's that normally communicate with PLC's and EPSC devices have SIML fields which change their behaviour if SIM_MODE record VAL set to 1.
- Code in main driver causes current readbacks to mirror IDES values.
- Alarm status fields behave as in production mode.


VisualDCT - [/home/whitegr/ATF2/control-software/epics-3.14.8/ioc-ps/db/ps.vdb]
File Edit View Plugins Debug Tools Help
bo
BPS$(PS):faultReset
ai
BPS$(PS):status
ao
PS$(PS):currentSTORE
ao
PS$(PS):currentDES
bo
BPS$(PS):pwrOnOff
ai
BPS$(PS):outputVoltage
ao
PS$(PS):rampTimeConv
ao
PS$(PS):simMode
SIML
VAL
FLNK
waveform
PS$(PS):setCurrentHold
waveform
PS$(PS):setCurrent
waveform
PS$(PS):readADC
waveform
PS$(PS):resetController
waveform
PS$(PS):resetInterlocks
waveform
PS$(PS):confComm
mbbiDirect
PS$(PS):status1
stringout
PS$(PS):errorString
mbbiDirect
PS$(PS):status2
ai
PS$(PS):refV
mbbiDirect
PS$(PS):status3
stringin
PS$(PS):calDate
mbbiDirect
ai
long
/home/whitegr/ATF2/control-software/epics-3.14.8/ioc-ps/dbd/ps.dbd, 1 loaded templates(s)
M...
Edit Mode
80%