FVTX Hardware Commissioning

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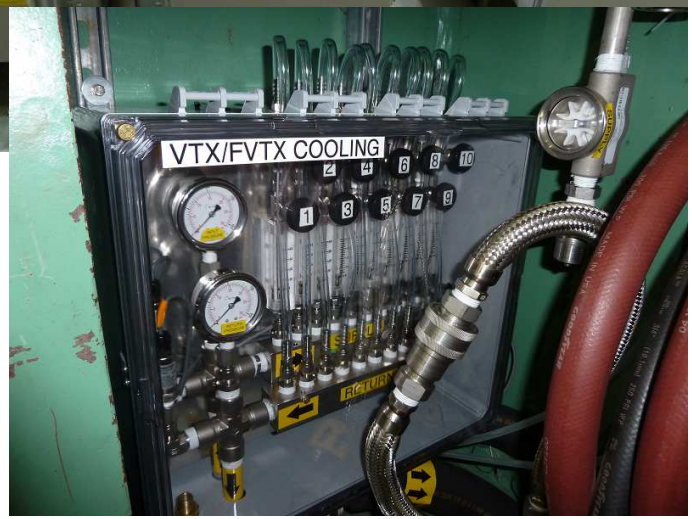
FVTX Closeout

23-Apr-2012

Chillers

- Uses same chillers as VTX
  - Were installed for RUN-11
  - Manifolds were designed to include FVTX
  - Only required final connections to FVTX
- Based on RUN-11 Experience
  - NOVEC monitored routinely for contaminates
  - Filtering procedure in place to remove contamination

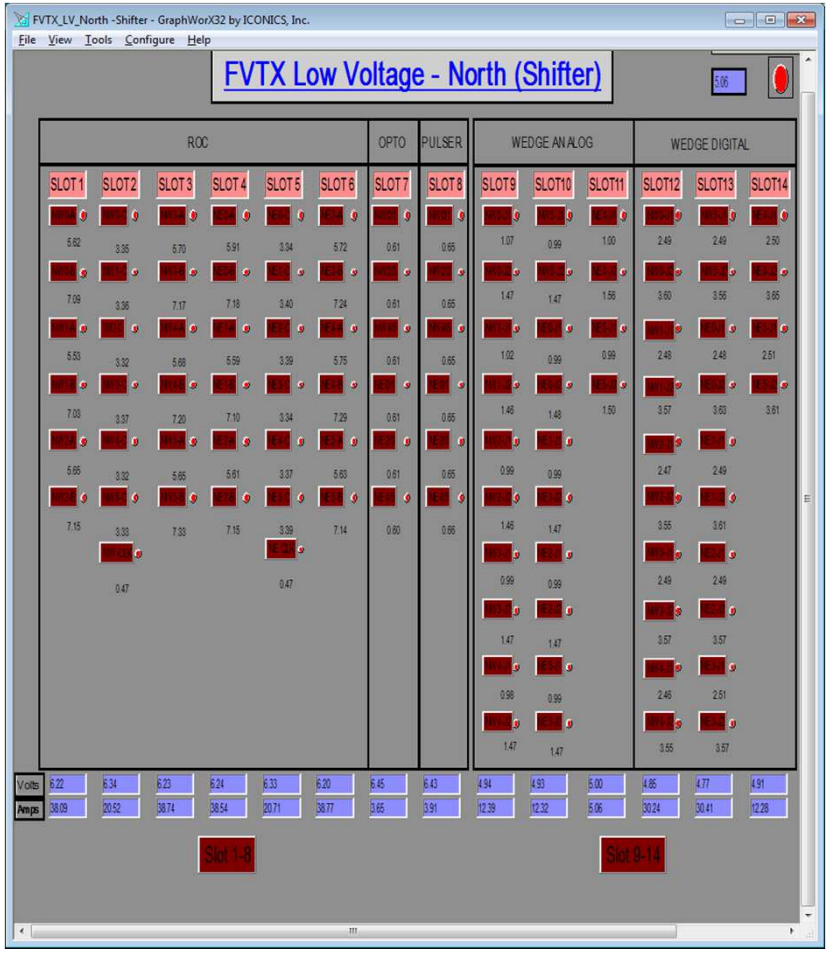


Low Voltage

- Based on PHENIX “Standard” Low Voltage Distribution
  - Separate systems for North/South end caps
  - 196 LV Channels
- Additional control and filtering for wedge LV
  - 768 Wedge channels
- Outside vendors and PHENIX techs produced, tested and installed LV Cables

LV Control

- Software control based on ADAMS interface
  - Common PHENIX slow control
  - Standard GUIs
  - Expert and Shifter versions
  - Provides voltage and current read back



Bias System

- Based on Wiener/ISEG MPOD System
  - Identical system are used by the VTX
  - Additional switching and filtering using FVTX distribution crate. 1 to 8 split
  - Outside vendors and PHENIX Techs assembled, tested and installed Bias cables.
- Software is based on software developed for VTX
- Voltages and currents in database with Web interface

Operator Control

Current status

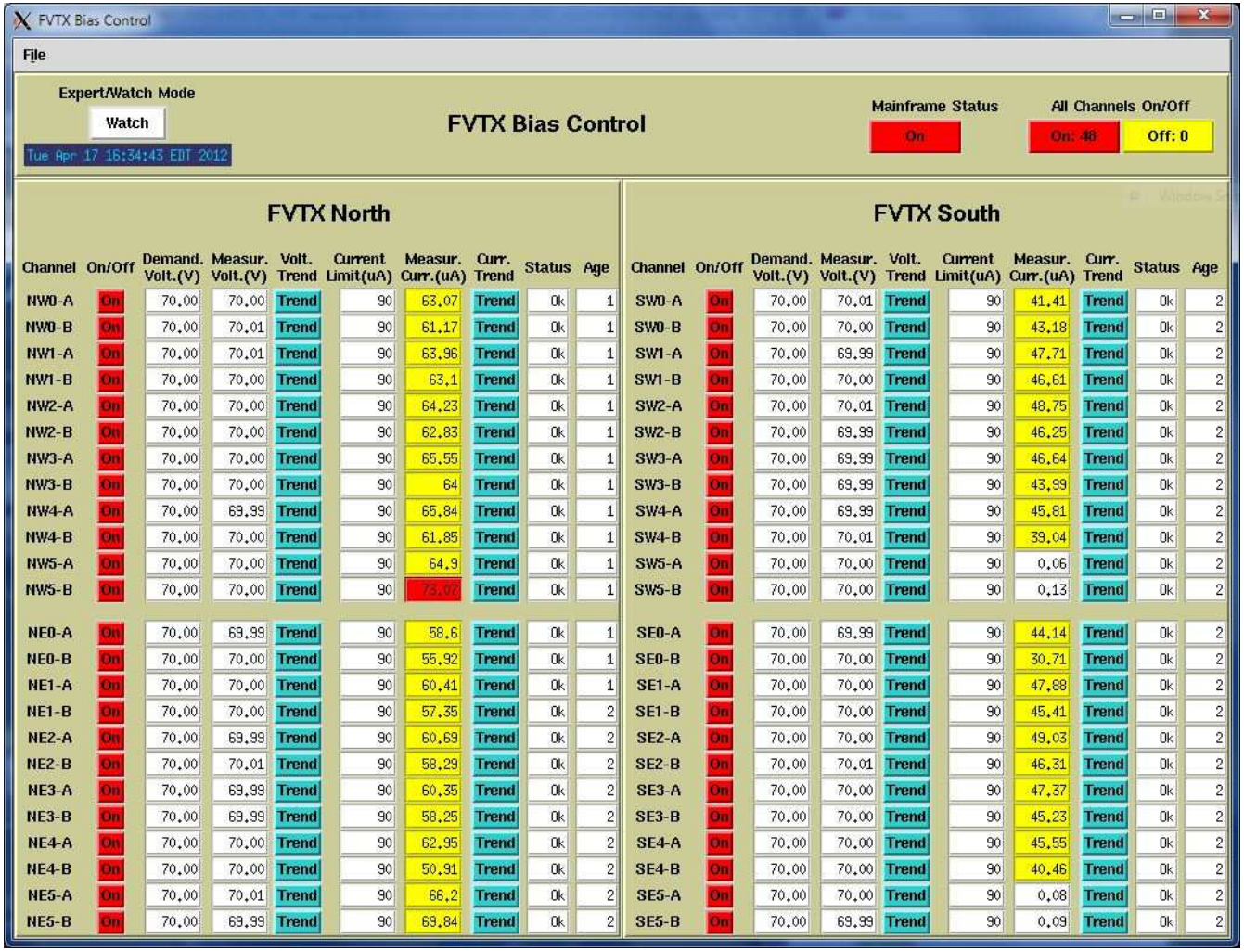
Set Bias to standby (off)

Set Bias to Operational (on)

Trip recovery

Reset Mainframe

Bias Monitoring



FVTX Bias Control

File

Expert/Watch Mode: Watch

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FVTX Bias Control

Mainframe Status: On

All Channels On/Off: On: 48 Off: 0

FVTX North

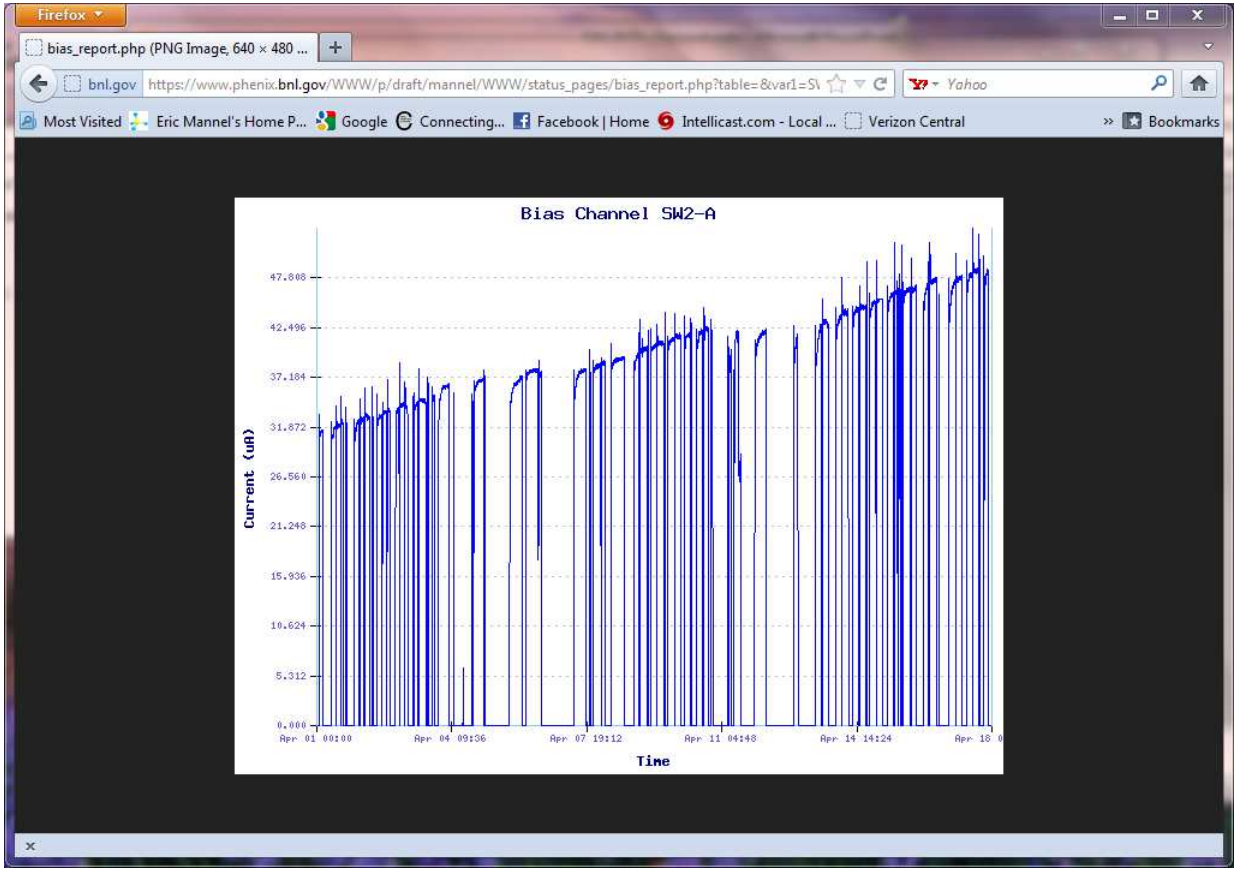
Channel	On/Off	Demand. Volt.(V)	Measur. Volt.(V)	Volt. Trend	Current Limit(uA)	Measur. Curr.(uA)	Curr. Trend	Status	Age
NW0-A	On	70.00	70.00	Trend	90	63.07	Trend	0k	1
NW0-B	On	70.00	70.01	Trend	90	61.17	Trend	0k	1
NW1-A	On	70.00	70.01	Trend	90	63.96	Trend	0k	1
NW1-B	On	70.00	70.00	Trend	90	63.1	Trend	0k	1
NW2-A	On	70.00	70.00	Trend	90	64.23	Trend	0k	1
NW2-B	On	70.00	70.00	Trend	90	62.83	Trend	0k	1
NW3-A	On	70.00	70.00	Trend	90	65.55	Trend	0k	1
NW3-B	On	70.00	70.00	Trend	90	64	Trend	0k	1
NW4-A	On	70.00	69.99	Trend	90	65.84	Trend	0k	1
NW4-B	On	70.00	70.00	Trend	90	61.85	Trend	0k	1
NW5-A	On	70.00	70.00	Trend	90	64.9	Trend	0k	1
NW5-B	On	70.00	70.00	Trend	90	73.07	Trend	0k	1
NE0-A	On	70.00	69.99	Trend	90	58.6	Trend	0k	1
NE0-B	On	70.00	70.00	Trend	90	55.92	Trend	0k	1
NE1-A	On	70.00	70.00	Trend	90	60.41	Trend	0k	1
NE1-B	On	70.00	70.00	Trend	90	57.35	Trend	0k	2
NE2-A	On	70.00	69.99	Trend	90	60.69	Trend	0k	2
NE2-B	On	70.00	70.01	Trend	90	58.29	Trend	0k	2
NE3-A	On	70.00	69.99	Trend	90	60.35	Trend	0k	2
NE3-B	On	70.00	69.99	Trend	90	58.25	Trend	0k	2
NE4-A	On	70.00	70.00	Trend	90	62.95	Trend	0k	2
NE4-B	On	70.00	70.00	Trend	90	50.91	Trend	0k	2
NE5-A	On	70.00	70.01	Trend	90	66.2	Trend	0k	2
NE5-B	On	70.00	69.99	Trend	90	69.84	Trend	0k	2

FVTX South

Channel	On/Off	Demand. Volt.(V)	Measur. Volt.(V)	Volt. Trend	Current Limit(uA)	Measur. Curr.(uA)	Curr. Trend	Status	Age
SW0-A	On	70.00	70.01	Trend	90	41.41	Trend	0k	2
SW0-B	On	70.00	70.00	Trend	90	43.18	Trend	0k	2
SW1-A	On	70.00	69.99	Trend	90	47.71	Trend	0k	2
SW1-B	On	70.00	70.00	Trend	90	46.61	Trend	0k	2
SW2-A	On	70.00	70.01	Trend	90	48.75	Trend	0k	2
SW2-B	On	70.00	69.99	Trend	90	46.25	Trend	0k	2
SW3-A	On	70.00	69.99	Trend	90	46.64	Trend	0k	2
SW3-B	On	70.00	69.99	Trend	90	43.99	Trend	0k	2
SW4-A	On	70.00	69.99	Trend	90	45.81	Trend	0k	2
SW4-B	On	70.00	70.01	Trend	90	39.04	Trend	0k	2
SW5-A	On	70.00	70.00	Trend	90	0.06	Trend	0k	2
SW5-B	On	70.00	70.00	Trend	90	0.13	Trend	0k	2
SE0-A	On	70.00	69.99	Trend	90	44.14	Trend	0k	2
SE0-B	On	70.00	70.00	Trend	90	30.71	Trend	0k	2
SE1-A	On	70.00	70.00	Trend	90	47.88	Trend	0k	2
SE1-B	On	70.00	70.00	Trend	90	45.41	Trend	0k	2
SE2-A	On	70.00	70.00	Trend	90	49.03	Trend	0k	2
SE2-B	On	70.00	70.01	Trend	90	46.31	Trend	0k	2
SE3-A	On	70.00	70.00	Trend	90	47.37	Trend	0k	2
SE3-B	On	70.00	70.00	Trend	90	45.23	Trend	0k	2
SE4-A	On	70.00	70.00	Trend	90	45.55	Trend	0k	2
SE4-B	On	70.00	70.00	Trend	90	40.46	Trend	0k	2
SE5-A	On	70.00	70.00	Trend	90	0.08	Trend	0k	2
SE5-B	On	70.00	69.99	Trend	90	0.09	Trend	0k	2

Bias Database Interface

- Current for 8 wedges
- Bias current increasing due to radiation
- Most significant effect from p-p running
- Supply limit 1mA, now at ~30uA



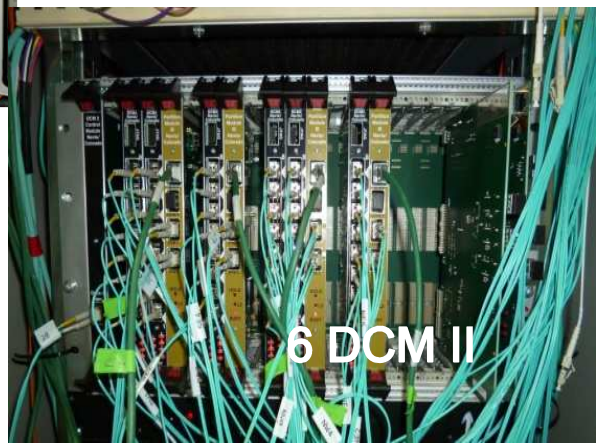
Interlocks

- Fully interlocked on temperature and coolant flow
- Shares same system as VTX
  - Siemens PLC Based
  - 40 Thermal couples for FVTX
    - Disk temperature
    - Big Wheel temperature
- Temperatures and interlock status logged to database

Thermal History

FEM/DCM-2 Crates

- 4 FEM crates w/ 48 FEMs installed in Rack Room
- 1 DCM-2 Crate w/ 6 DCM-2 modules (48 channels)
- All installed and ready for FVTX installation



The Major Players

- Chiller
  - R. Pisani
  - C. Biggs
  - R. Pak
- Low/Bias Voltage
  - F. Toldo
  - S. Boose
  - S. Polizzo
  - P. Giannotti
- Cabling
  - J. LaBounty
  - M. Lenz
  - F. Toldo
- Interlocks
  - P. Giannotti
  - S. Boose.
  - S. Polizzo
  - J. Haggerty
  - M. Lenz

Conclusions

- Chillers are installed and fully operational
- LV system is installed and is fully operational
- Bias system is installed and is fully functional
- Interlock system is installed and is fully operational
- Thanks to the PHENIX Techs whose hard work made it all possible