

# SpecMon

Tim Bodiya

University of Michigan

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DetCamp

# Motivation

- Monitoring Power Spectral Density for vetoing or other monitoring purposes.
- Must be N-Channel to allow for easy addition of bands to be monitored.
- Must have a way to determine what frequency bands of the channels should be monitored.
- Eventual replacement of ServoMon.

# Features

- N-Channel Capability through a config file
- Graphical User Interface using ROOT to allow the user to view SpecMon output in realtime
- Testing Channels available so that the user can look at the any band in user specified channels.

# Structure of Config File

H1

Channels = 2

Channel Channelname=H1:LSC-AS\_Q Bands=1

Band Bandname=Band1 freqlo=10 freqhi=100 lopower=0 hipower=1

Channel Channelname=H1:IOO-MC\_F Bands =1

Band Bandname=Band1 freqlo=300 freqhi=355 lopower=0 hipower=4321

H2

Channels = 1

Channel Channelname=H2:LSC-AS\_Q Bands=1

Band Bandname=Band1 freqlo=0 freqhi=100 lopower=0 hipower=10

L1

Channels = 1

Channel Channelname = L1:LSC-AS\_Q Bands = 2

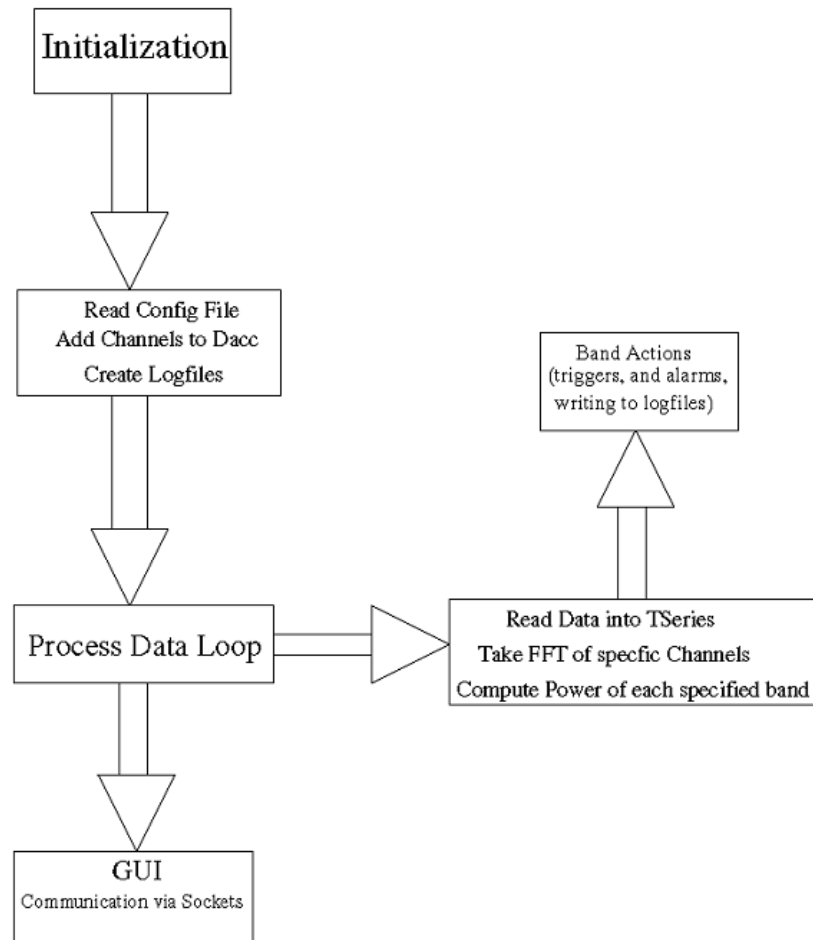
Band Bandname=Band1-1 freqlo=4321 freqhi=1234 lopower=1234 hipower=4321

Band Bandname=tim freqlo=10 freqhi =200 lopower=9887 hipower =232323

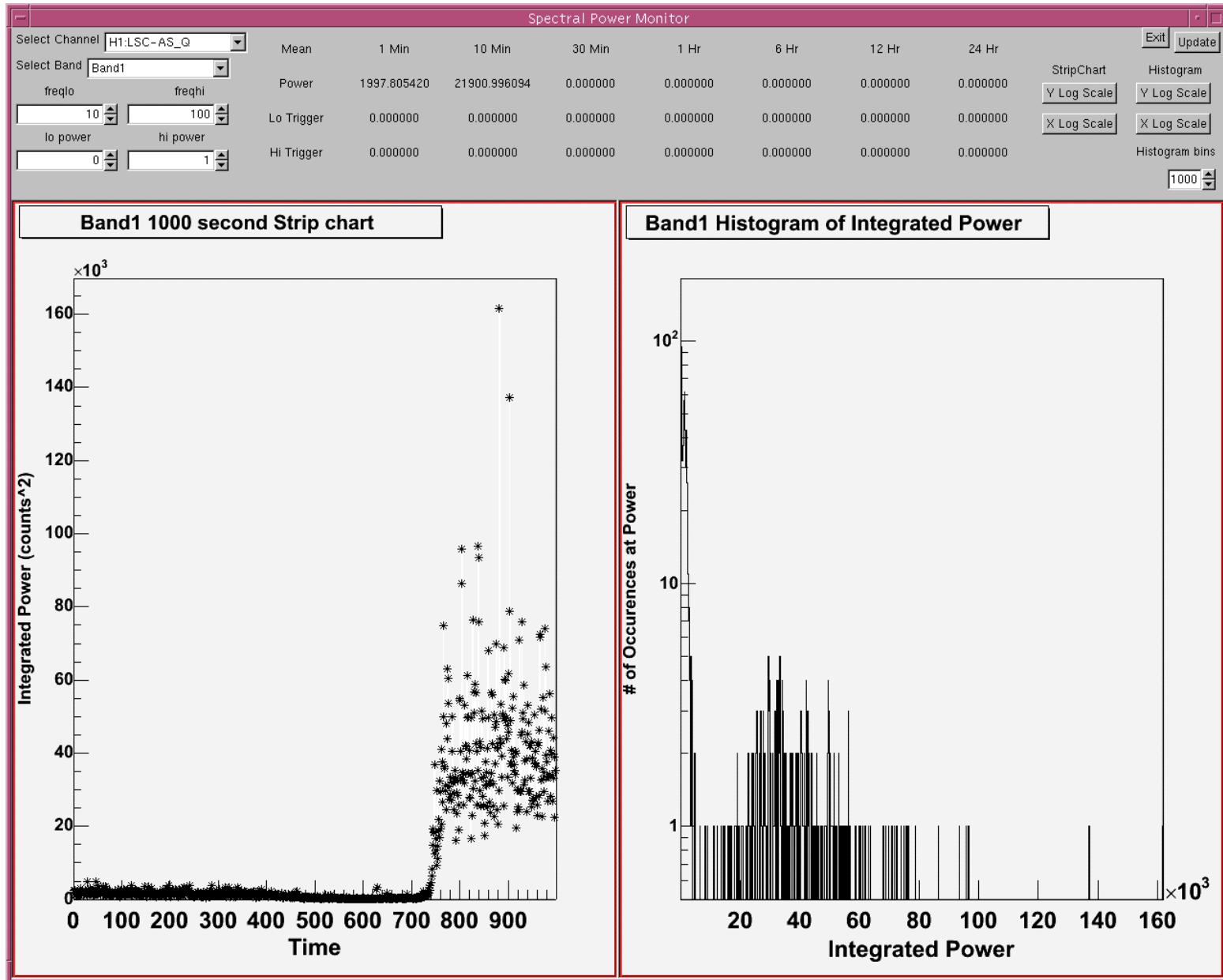
# Command Line Arguments

- -ifo
  - The interferometer where your channel data is coming from. (H1, H2, L1)
- -socketnumber
  - The socket number that the gui and background monitor will use to communicate. Set to your favorite integer preferably around 90\*\*.
- -update
  - The auto-update time of the gui. Defaults to 30 seconds.

# Flow Chart of Information



# GUI



# Socket Communication

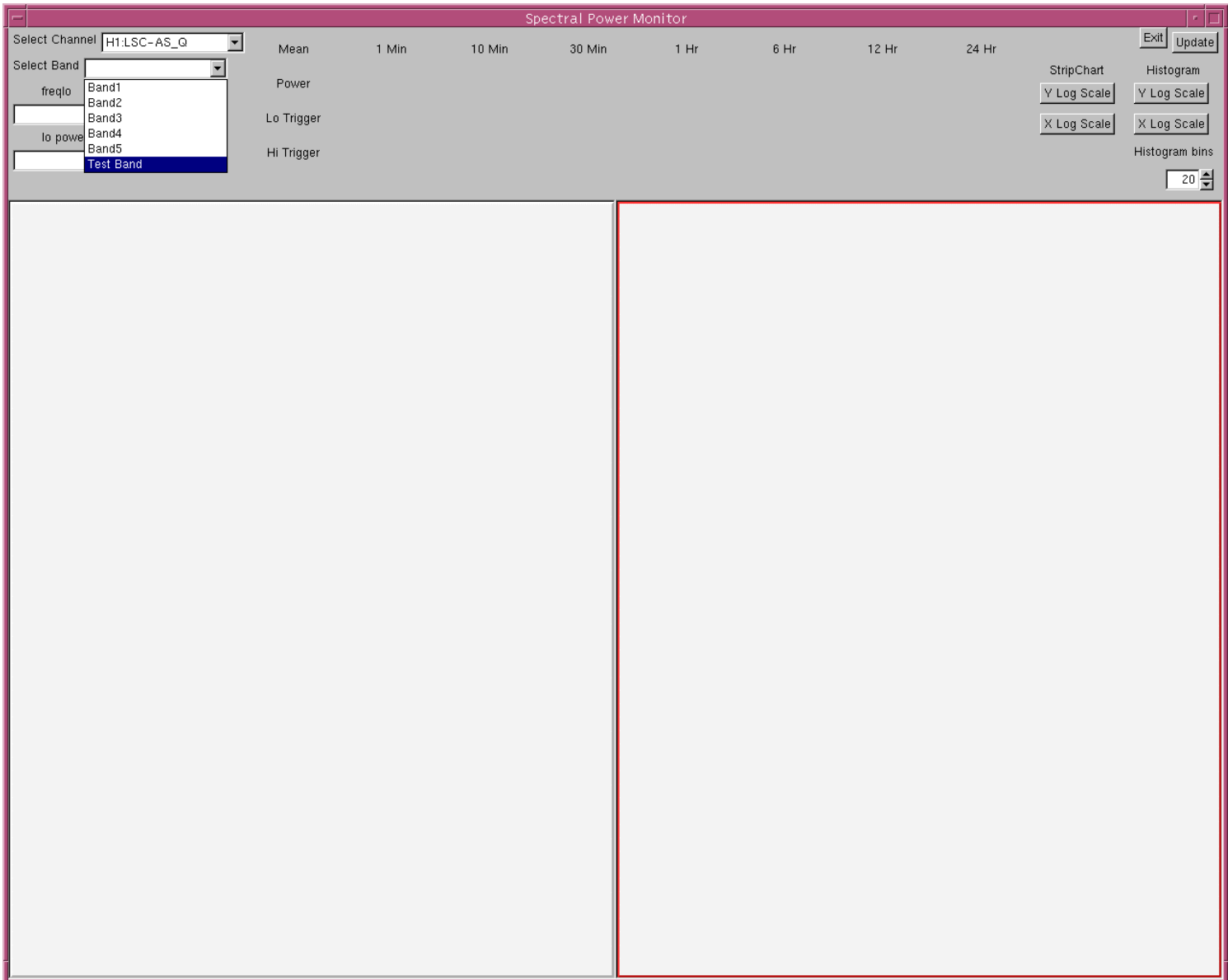
- GUI sends a signal to the background monitor when it wants information.
- Background monitor checks every processed frame for a signal from the GUI.
- A stripchart and histogram are created in the background monitor and sent along with averages and trigger averages to the GUI.

# Features of GUI

- Stripchart and Histogram (based on the ROOT TH1 F class).
- X and Y logscale.
- 20 to 10000 histogram bins.
- Band Averages and Trigger Averages (Triggers turned off-they started to malfunction).

# Test Band Information

- Capability to look at any band that you want in some specified channel in real time.
- Test Power Thresholds.
- Enables easy determination of frequency band to monitor.



# Coming Additions

- Trending
- Triggers on the Testing Bands

# Conclusion

- Originally developed to replace ServoMon with an interactive interface.
- But should also be a useful tool alone or when used in conjunction with DTT, MatLab.
- Comment and suggestions welcome.

bodtim@umich.edu