AP2 BPM status

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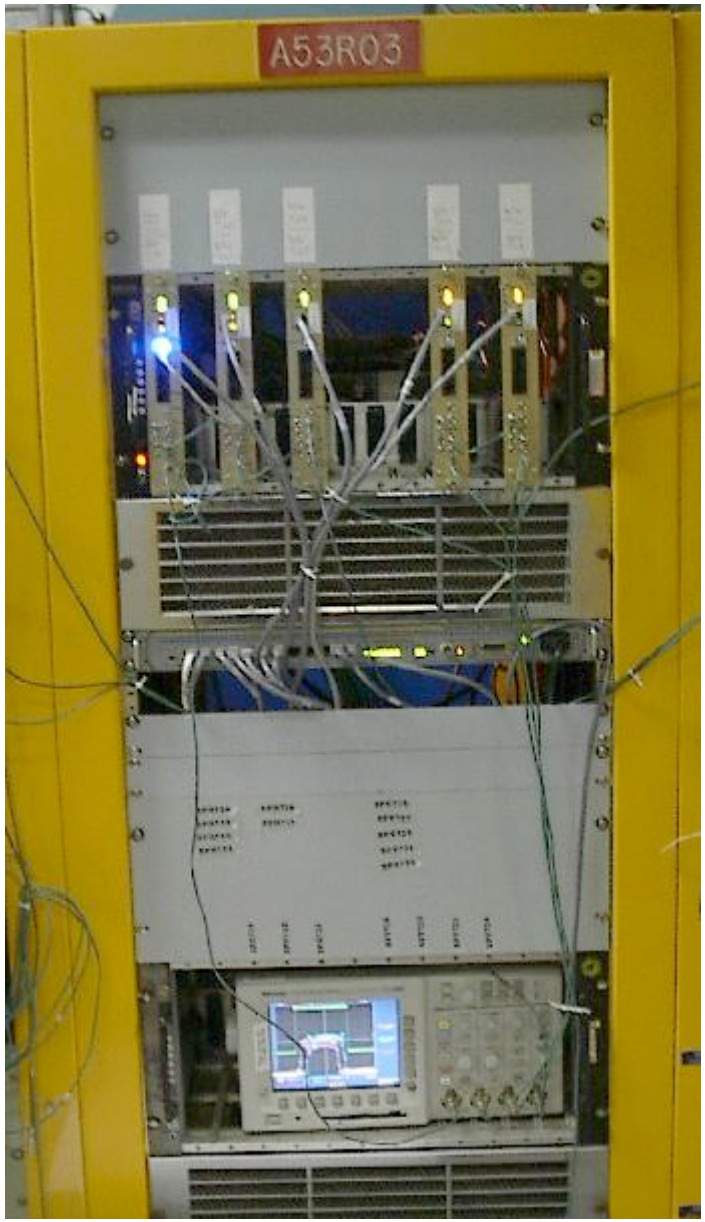
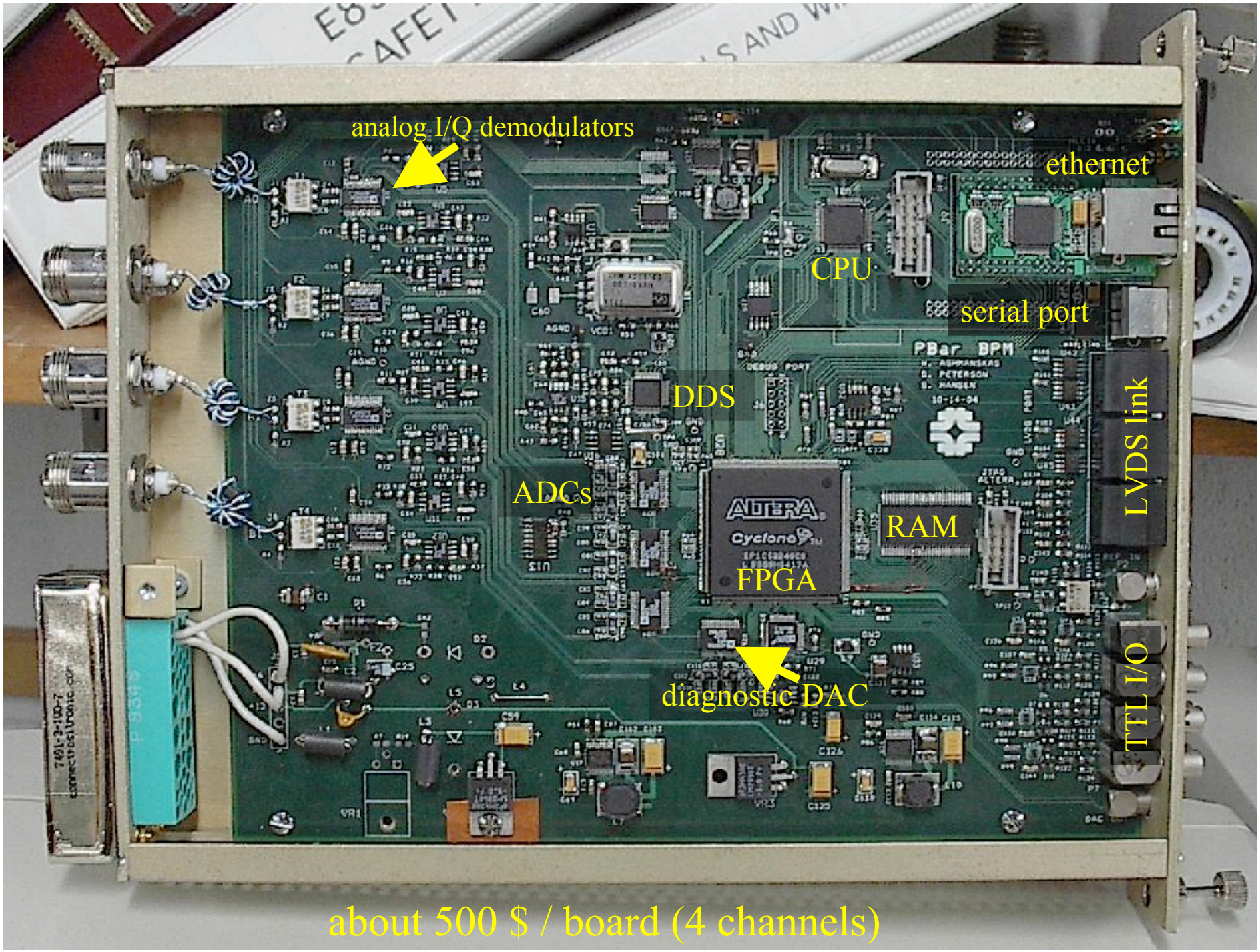
- Using 5 preproduction ("rev B") boards to read out 10 of the 17 AP2 BPMs that go to AP50. 17 more AP2 BPMs go to F27. 7 D-to-A BPMs go to AP10.
- Have Acnet readout, data logging, etc.
- Initial results (completely parasitic, while stacking) are encouraging: most BPMs measure position to a few hundred microns rms; a few "bad" ones measure position to 1-2 mm – I assume this is solvable.
- Recall that AP2 BPMs were thought to be unusable.
- Plan to release production order next week. Prefer to make ≥25 "rev C" boards so that they're all identical.
- Once we've done a few more basic checks, I can turn over the current set of BPMs to Keith and Steve for initial attempt at lattice measurements.

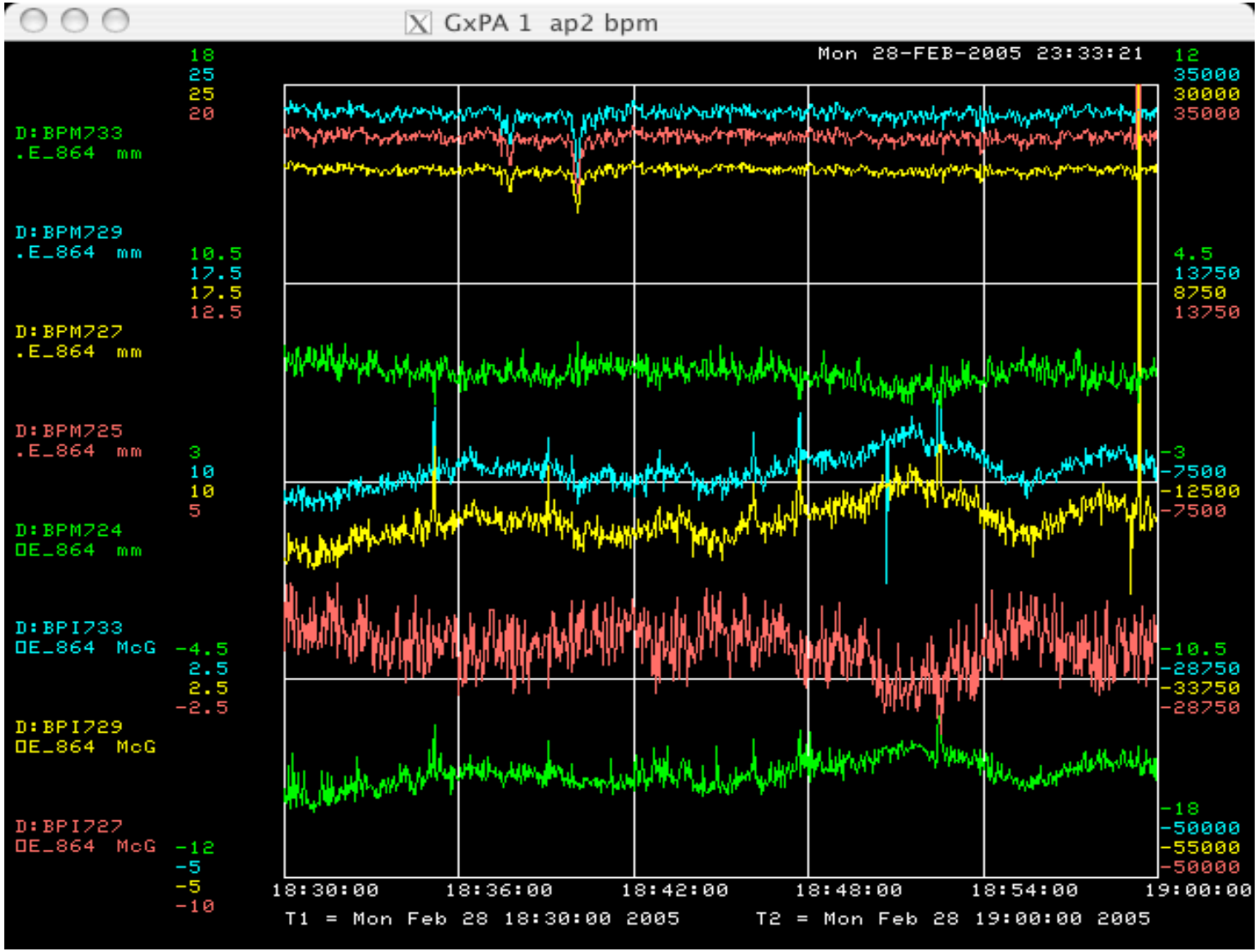
5 pre-production boards installed in AP50, reading out one horizontal (734) and all 9 vertical BPMs for AP2 line whose signals go to AP50. Each board does 2 BPMs. 4 more needed in AP50, and 9 in F27, to complete the AP2 line. Then another 4 for the D-to-A line.



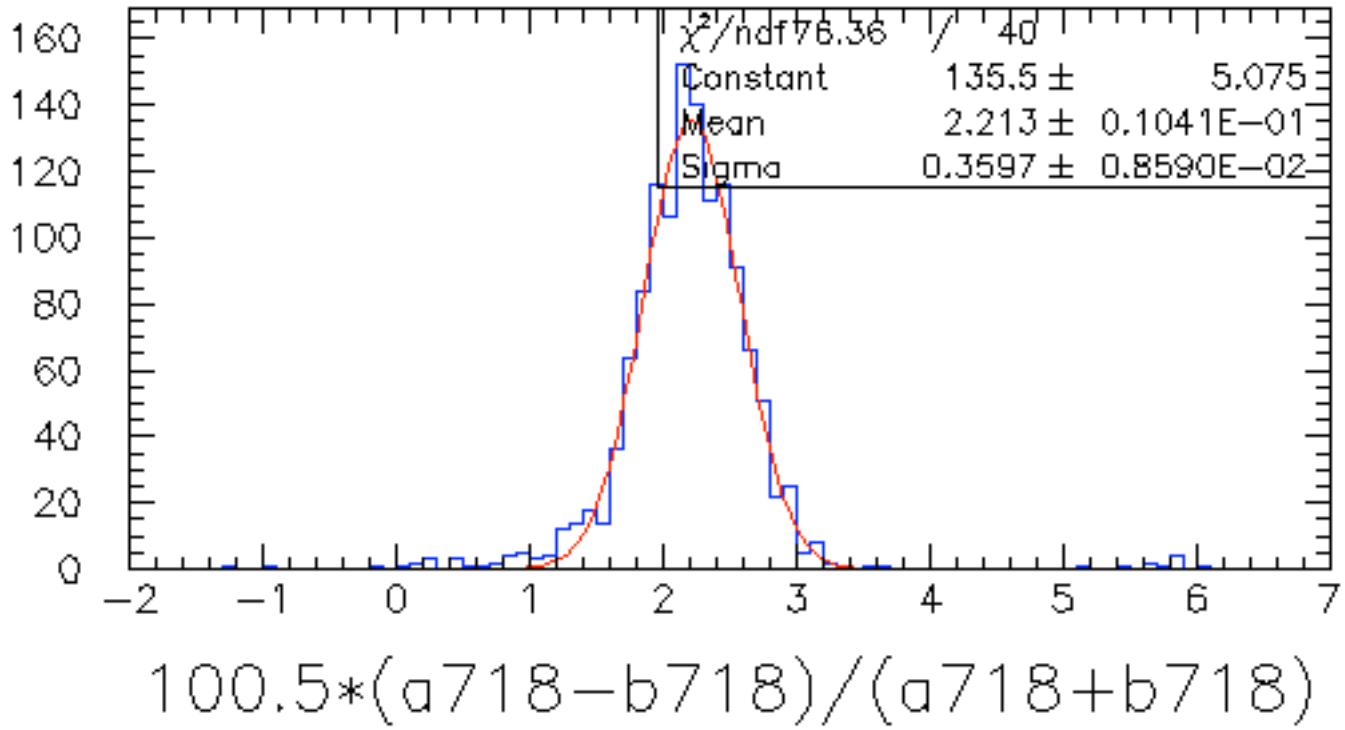

analog I/Q demodulators
ethernet
CPU
serial port
PBar BPM
DDS
LVDS link
ADCs
RAM
FPGA
TTL I/O
diagnostic DAC
about 500 $ / board (4 channels)

No more junk behind racks!

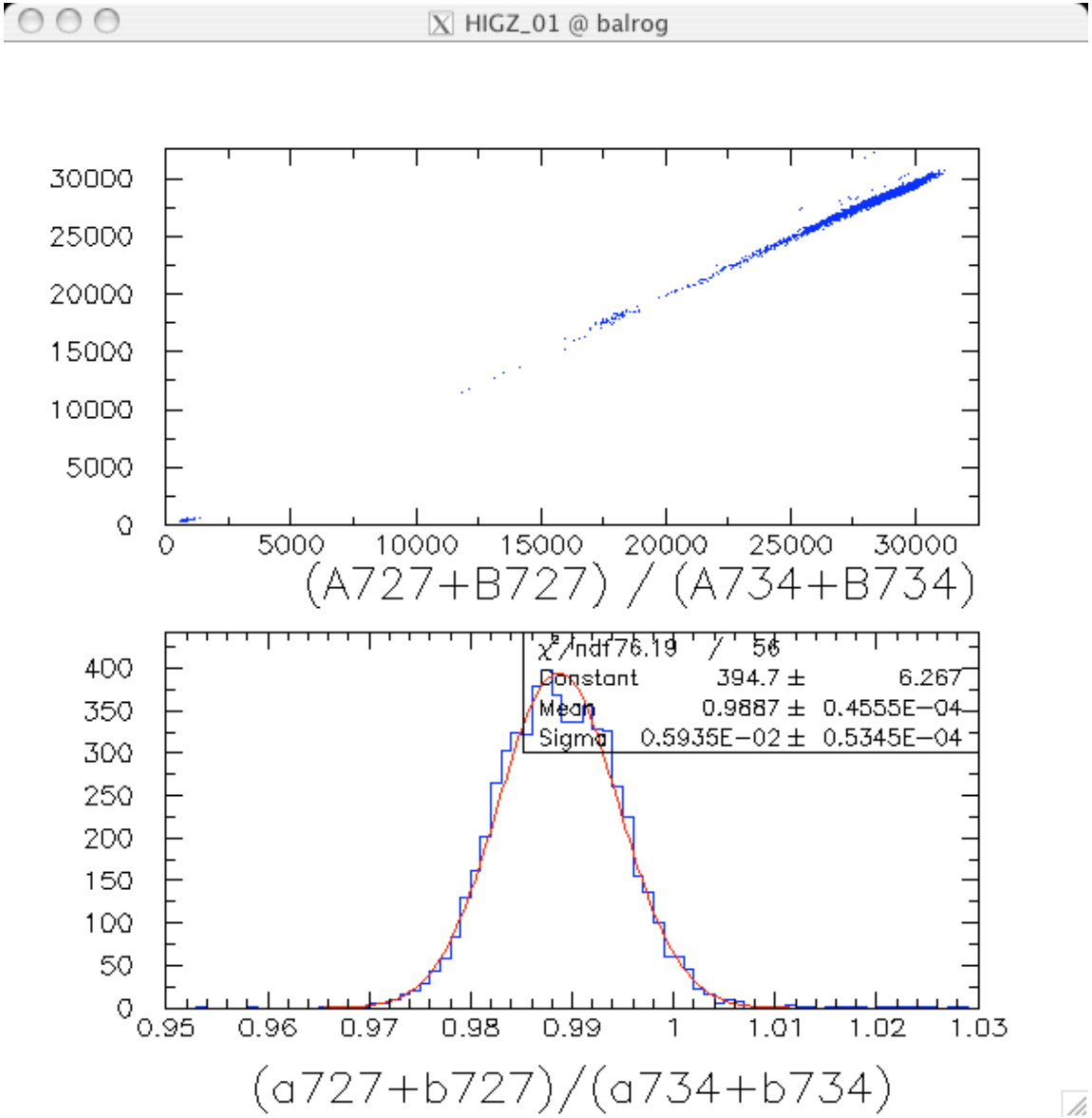
Have been reading out and data-logging (each stacking cycle) several BPMs' positions and intensities.

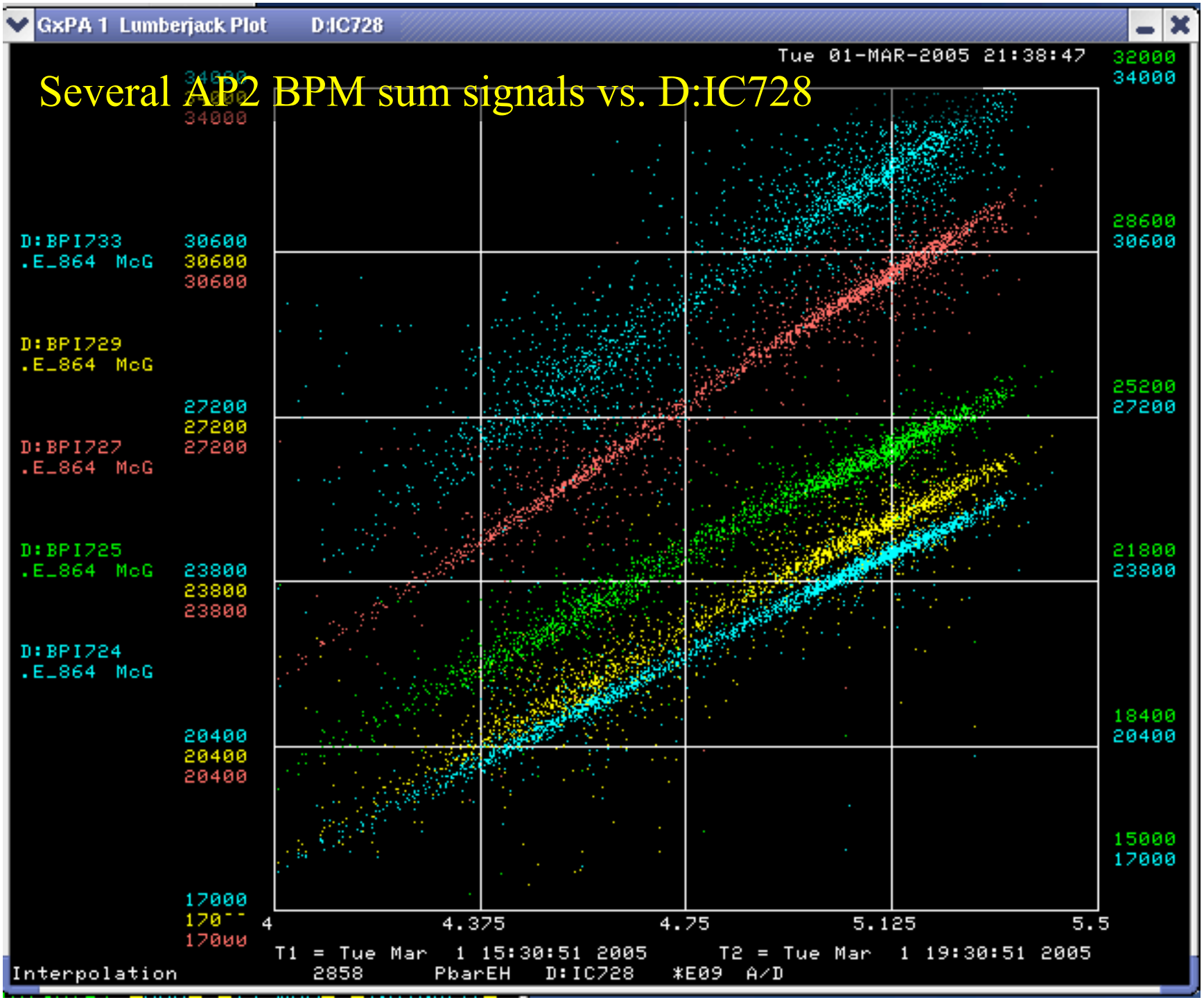


Of the 10 channels instrumented so far, 6 have position resolutions (statistical, rms) around 0.4mm. Working to track down the 1-2mm resolution seen in others. Hopefully we will improve even further as we study the effects. Note that AP50 is a particularly noisy environment (HLRF, kickers, ...).

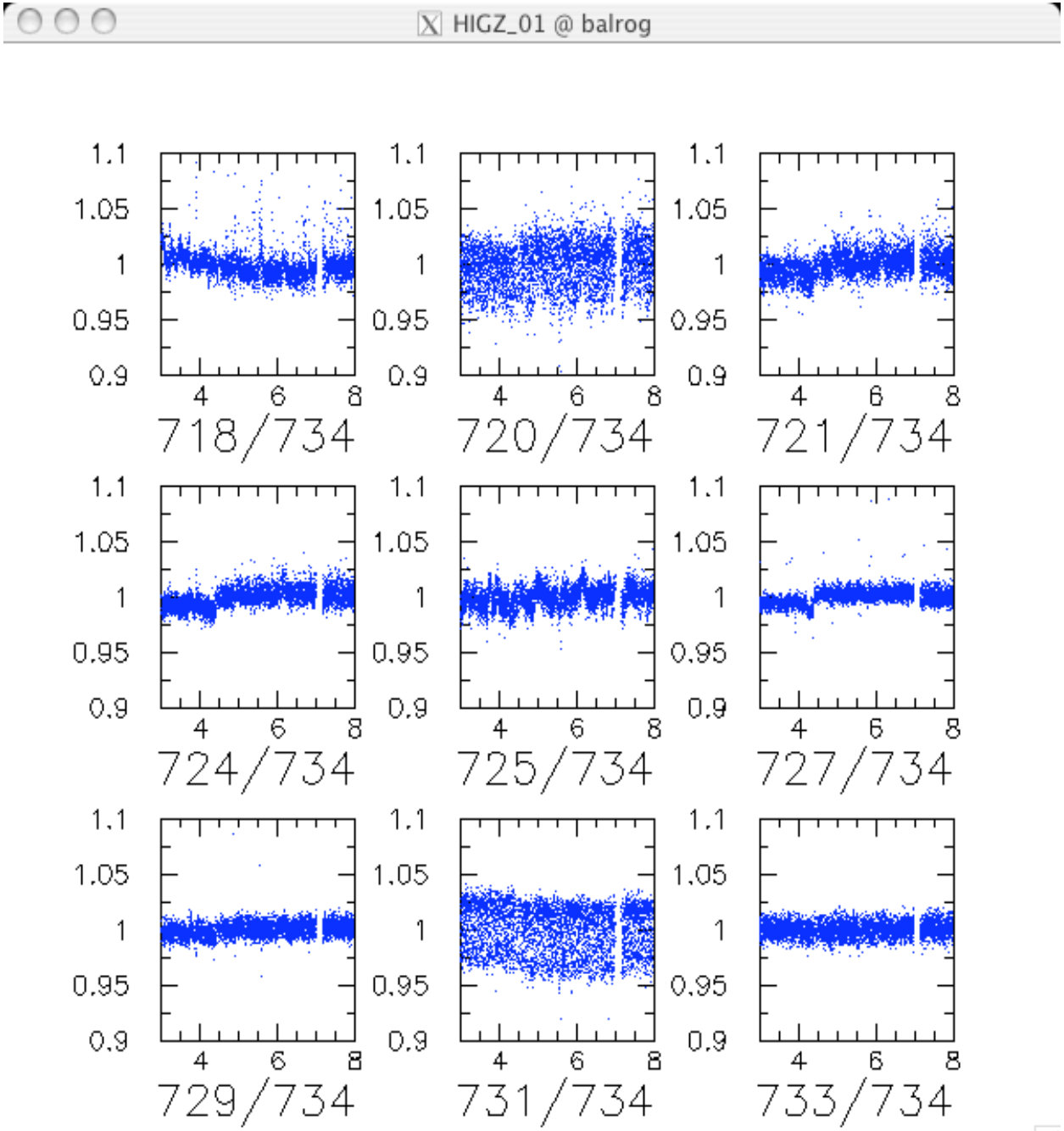


BPM sum signals correlate well with each other: 0.6% ratio implies that each “good” BPM measures relative intensity to about 0.4% rms per pulse.




GxPA 1 Lumberjack Plot D:IC728
Tue 01-MAR-2005 21:38:47
Several AP2 BPM sum signals vs. D:IC728
D:BPI733
.E_864 McG
D:BPI729
.E_864 McG
D:BPI727
.E_864 McG
D:BPI725
.E_864 McG
D:BPI724
.E_864 McG
34000
30600
30600
30600
27200
27200
27200
23800
23800
23800
20400
20400
20400
17000
17000
32000
34000
28600
30600
25200
27200
21800
23800
18400
20400
15000
17000
4
4.375
4.75
5.125
5.5
T1 = Tue Mar 1 15:30:51 2005
T2 = Tue Mar 1 19:30:51 2005
Interpolation
2858
PbarEH
D:IC728
*E09
A/D

Various intensity ratios over several hours. 720 and 731 have poor resolution, to be investigated.



Looking forward to ...

Fixing the annoying single-channel problems

Getting the final board order going

Diving in to see what we can learn from the data in order to improve antiproton stacking