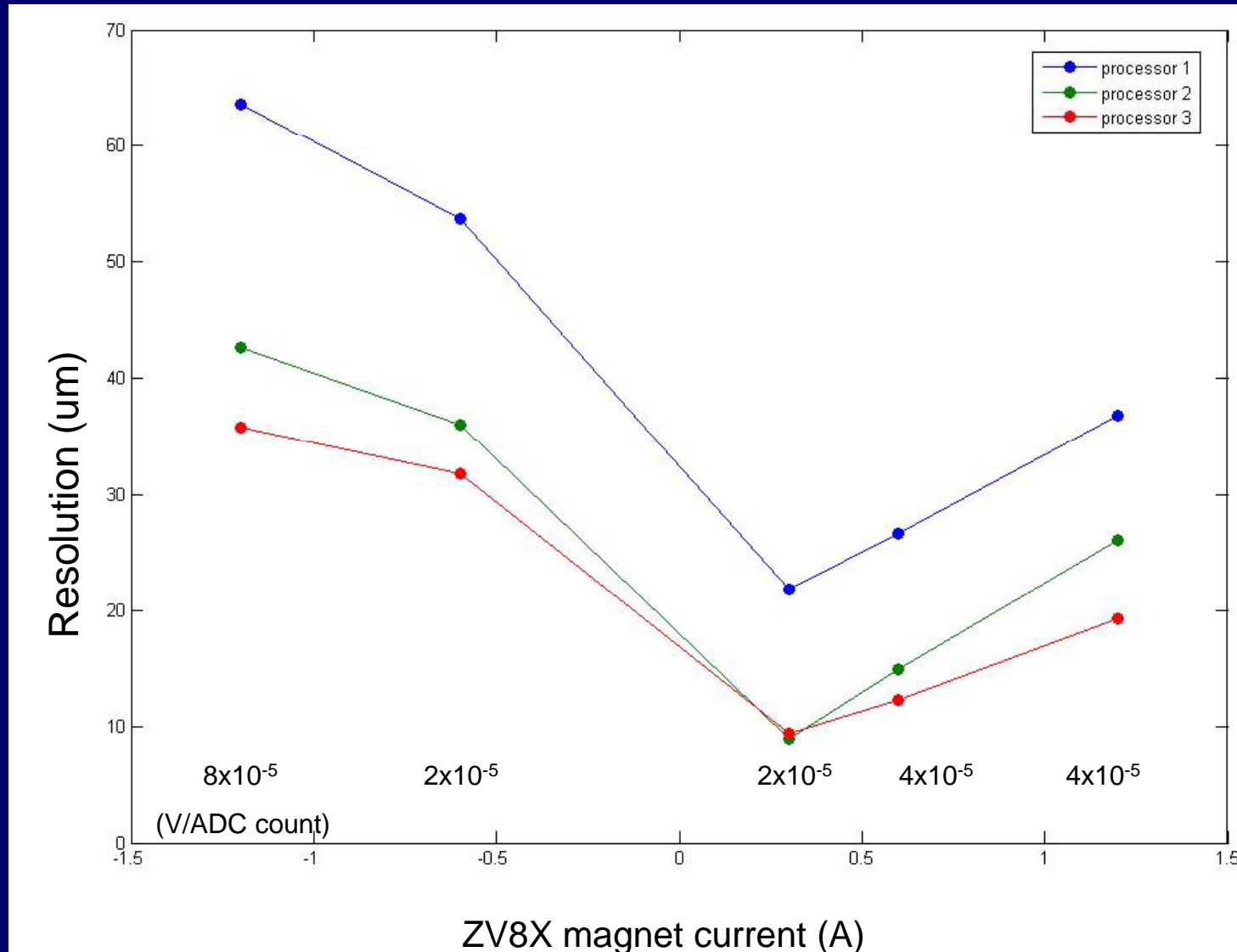


Analogue BPM data analysis

Calibration & resolution

Meeting of 20th June - Corrections

Resolution Vs position (May '08)



Run	Processor #	BPM #	Charge (10 ¹⁰)	Split	Scope #	Signal levels			Offset (mV)		Calibration constant (m ⁻¹)	Resolution (um)
						Max (mV)	Min (mV)	Sum (mV)	Diff (mV)	Sum (mV)		
Oct '07	P1	10	--	no	1	100	20	30			-2.77x10 ³	41.37
	P3	11	--	no	1	110	10	15			-2.44x10 ³	25.37
	P4	12	--	no	2	100	35	23			-2.48x10 ³	24.73
Dec '07	P1	12	--	4 ways	1	100	3.5	15	3.2	1.7	-2.74x10 ³	13.1
	P2	12	--	4 ways	1	90	7	15	2.9	1.7	-2.63x10 ³	14.1
	P3	12	--	4 ways	2	110	4	20	3.7	2.8	-2.70x10 ³	10.49
	P4	12	--	4 ways	2	110	10	20	2.5	0.45	-2.68x10 ³	12.41
March '08	P1	10	--	4 ways	1	45	-5	40	6.7	9.2	-2.70x10 ³	12.45
	P2	10	--	4 ways	dif=1 sum=2	50	-5	35	6.3	6.7	-2.72x10 ³	11.26
	P3	10	--	4 ways	dif=1 sum=2	40	-8	30	1.4	10.2	-2.67x10 ³	9.37
	P4	10	--	4 ways	2	50	0	40	10.2	1.7	-2.5504x10³ 1.68x10 ³	13.46 20.45
May '08	P1	11	0.9	4 ways +output 2 ways	1	60	4	11	0.45	-0.56	-2.26x10 ³	21.81
	P2	11	0.9	4 ways	1	70	1.5	12.5	1.1	0.34	-3.16x10 ³	9.00
	P3	11	0.9	4 ways	2	90	9	14	2.1	-0.35	-3.11x10 ³	9.46

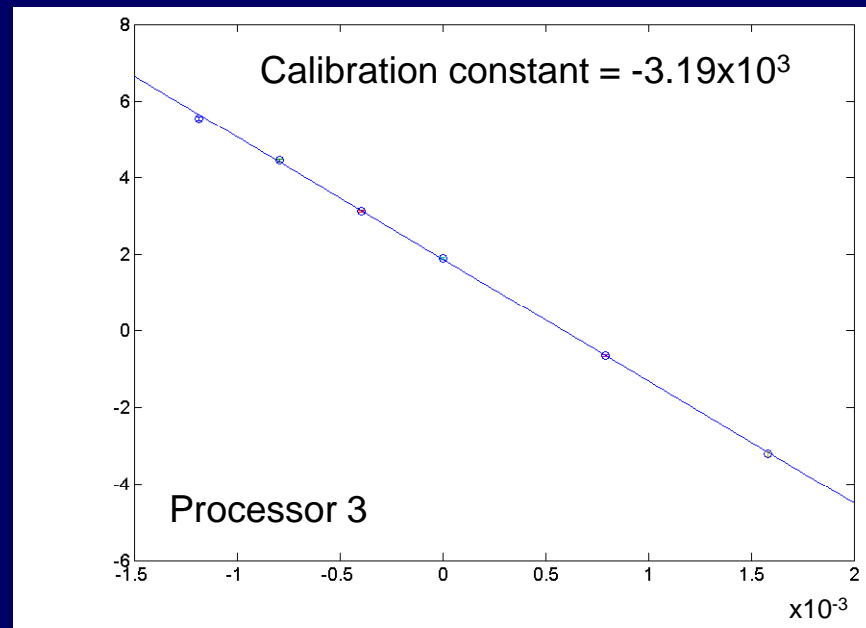
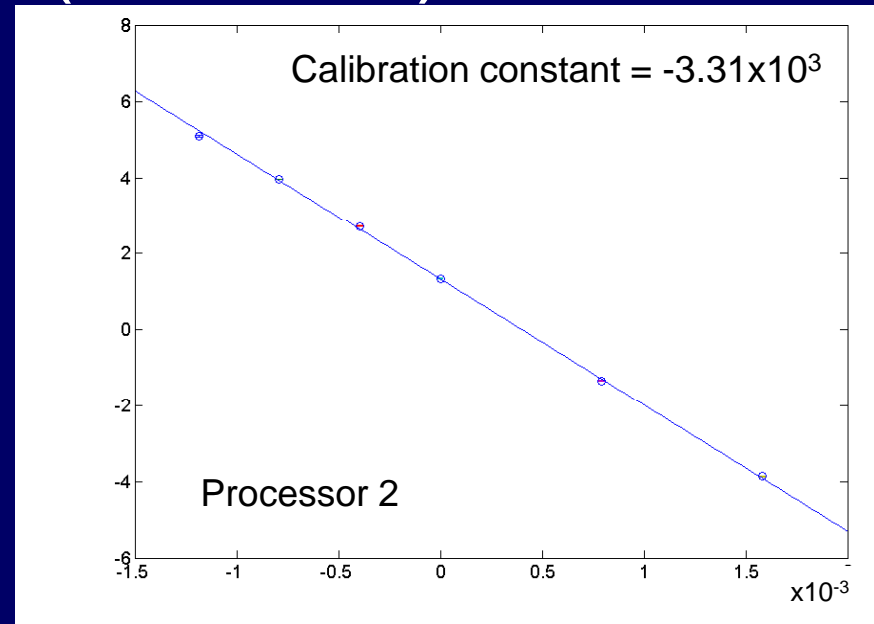
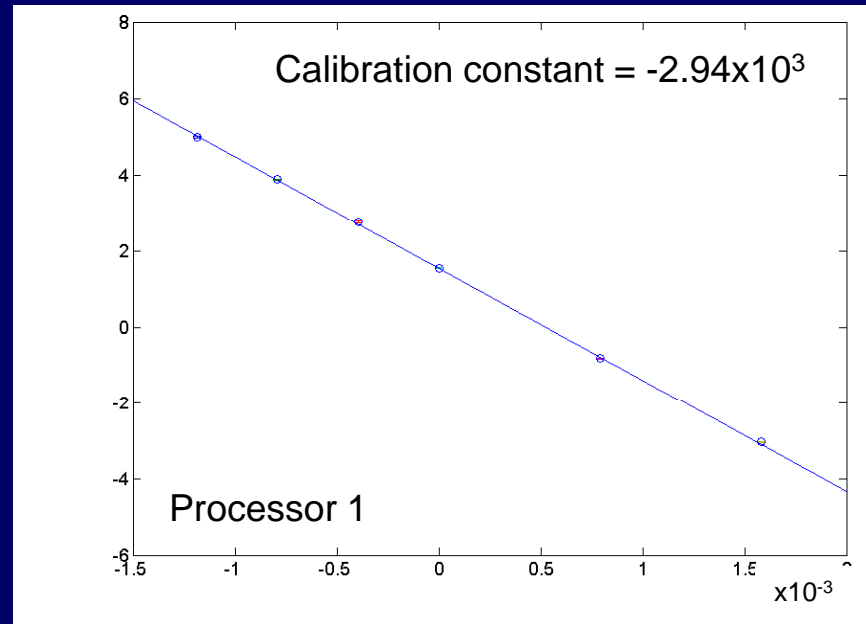
Comparison of resolution results
calculated via the usual method
VS
Results calculated using a jitter
analysis method

Resolution analysis for data taken 13/05/08

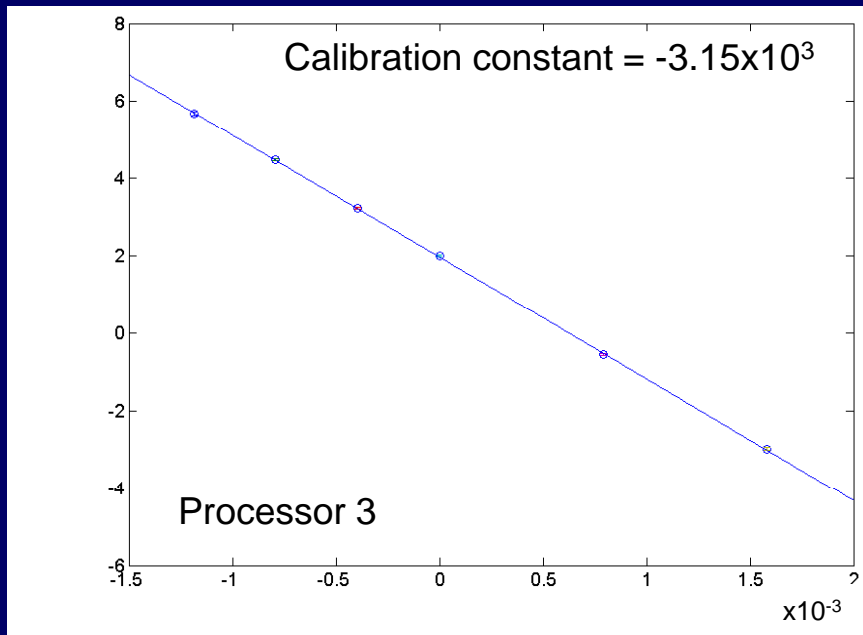
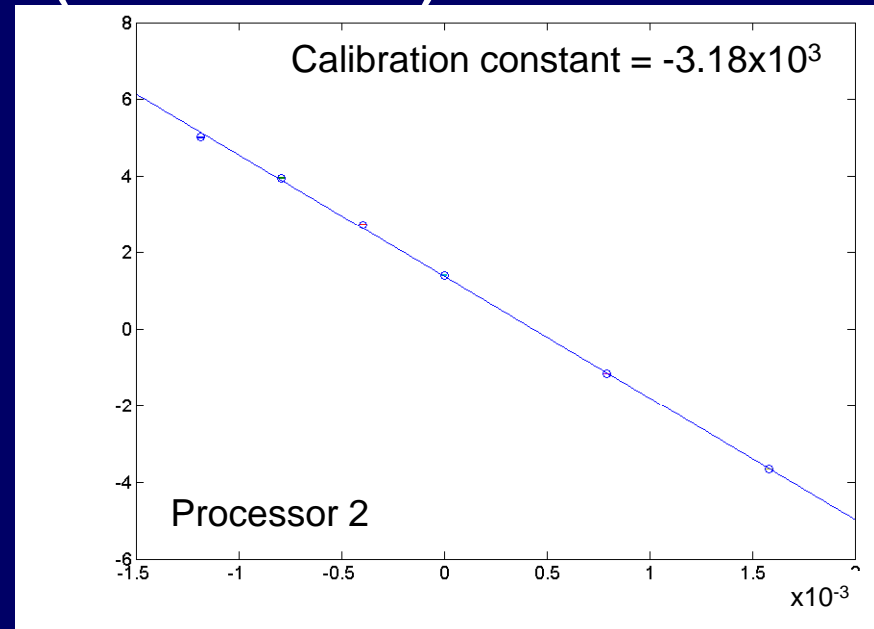
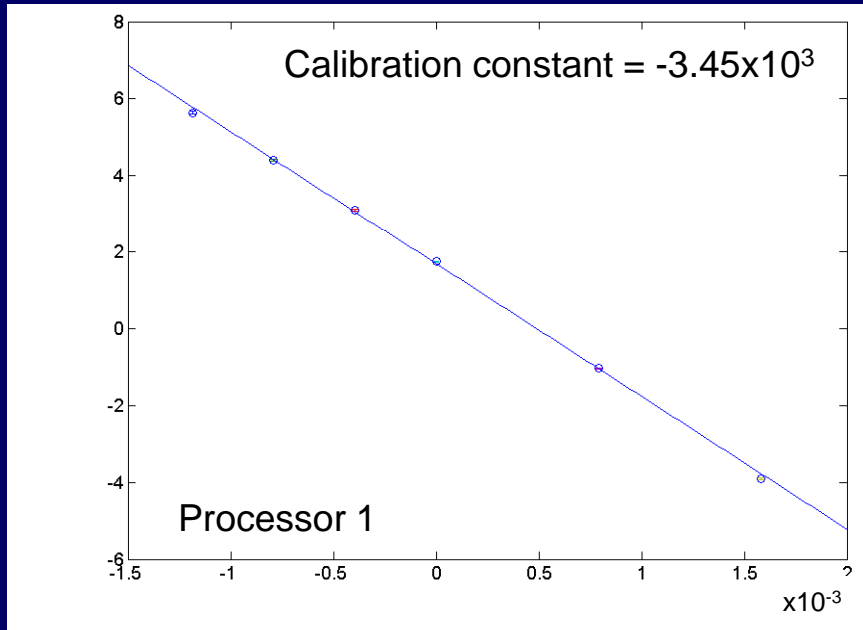
Setup

- 3 processors on BPM 11
- Stripline signals split 4 ways
- Output of processor 1 split with signals into digital board and eels bedroom
- 3 bunch calibration data of 50 pulses taken at 9 current settings of ZV8X + one resolution data run of 100 pulses

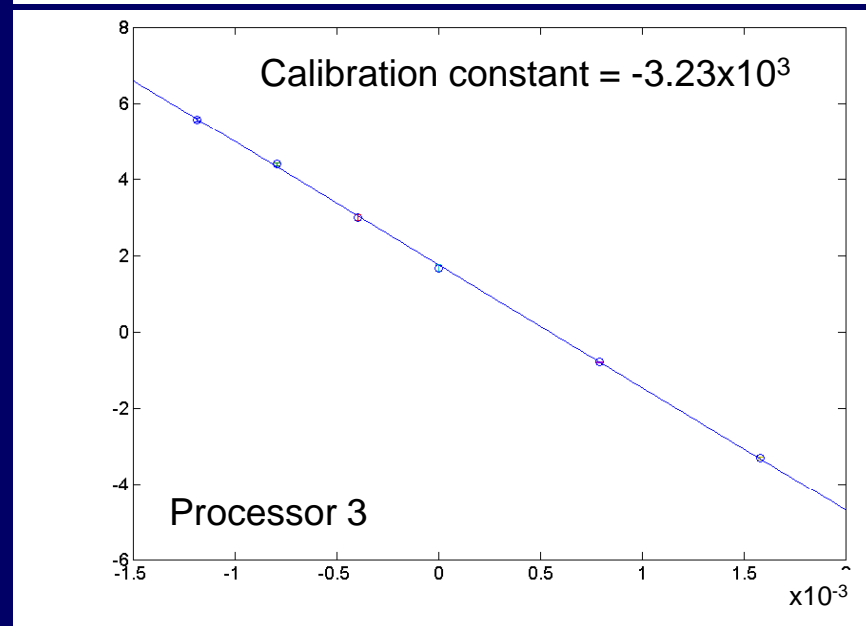
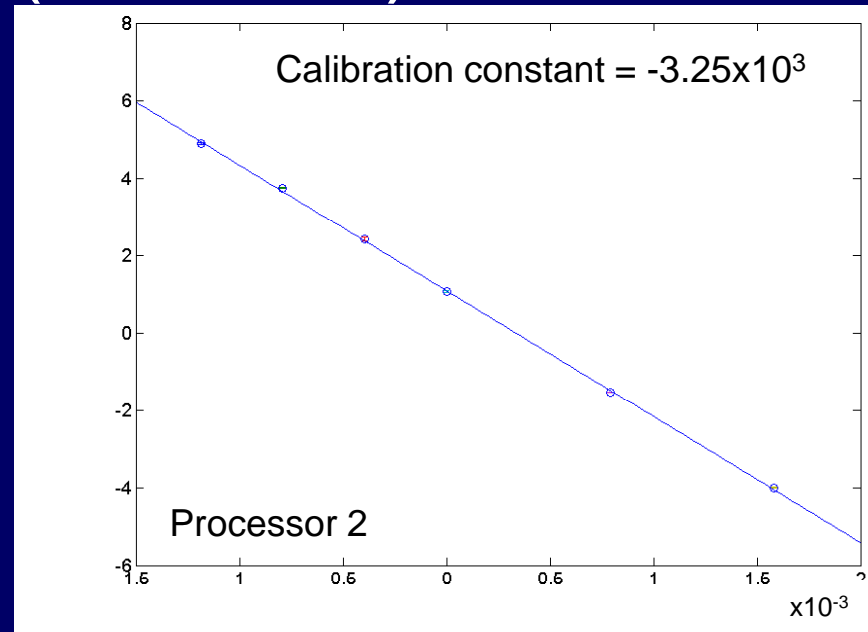
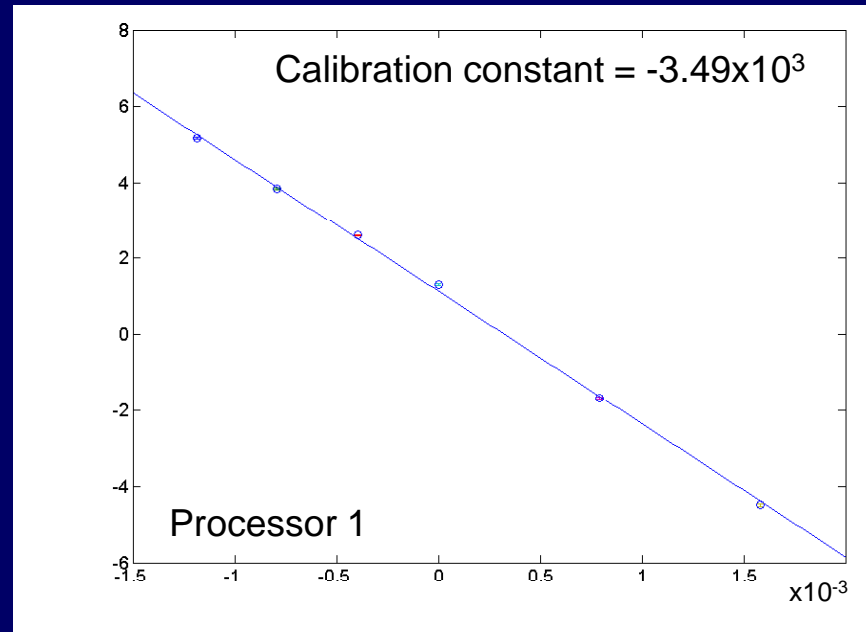
Calibration (bunch 1)



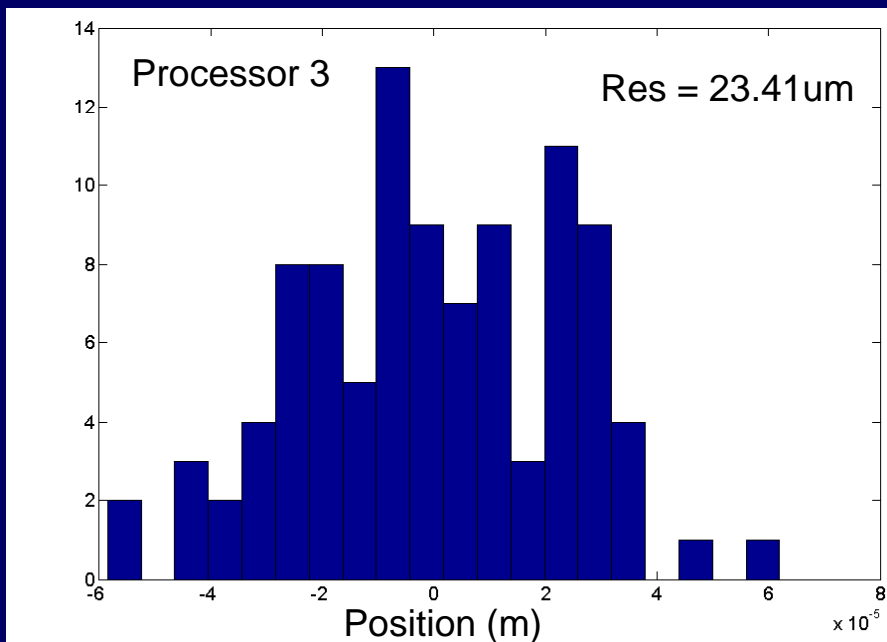
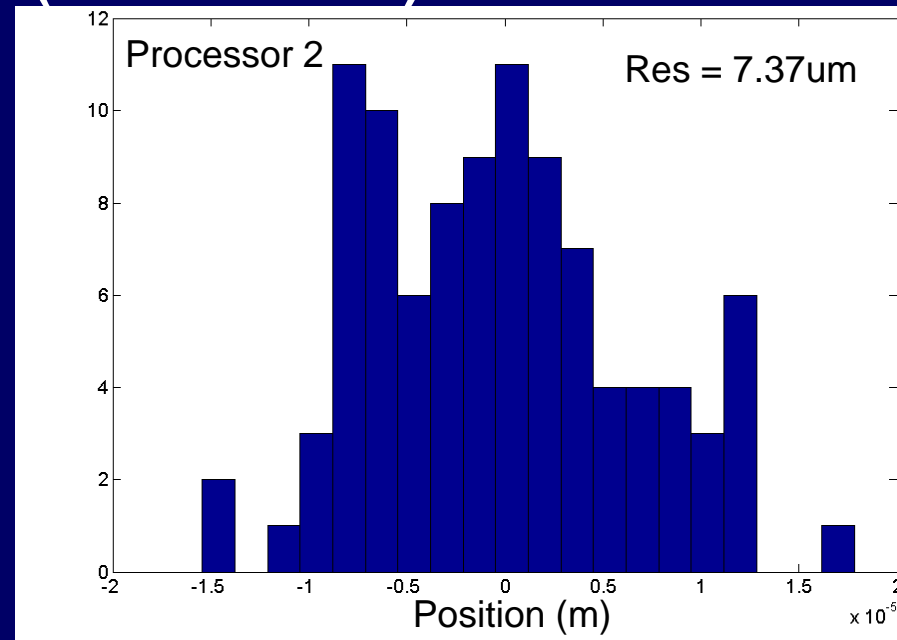
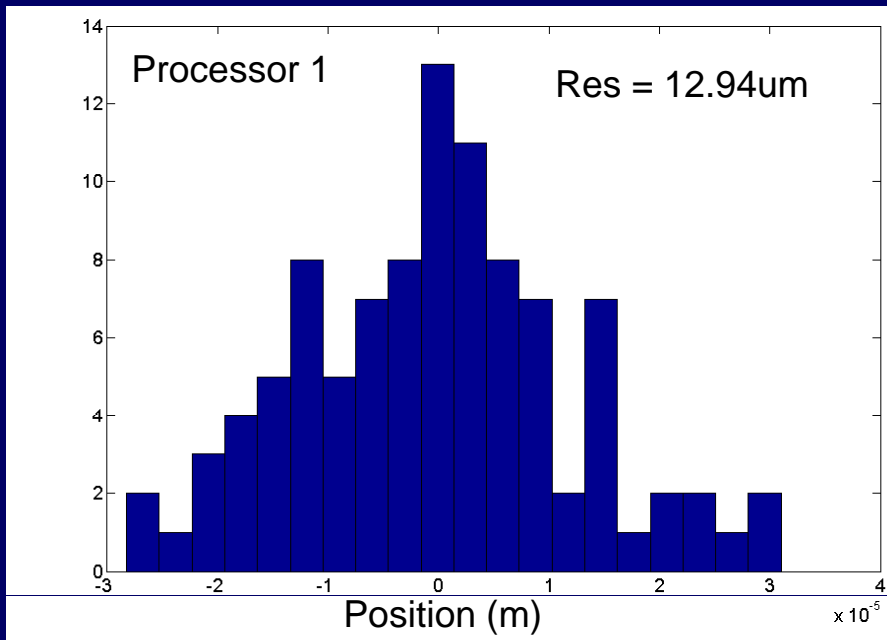
Calibration (bunch 2)



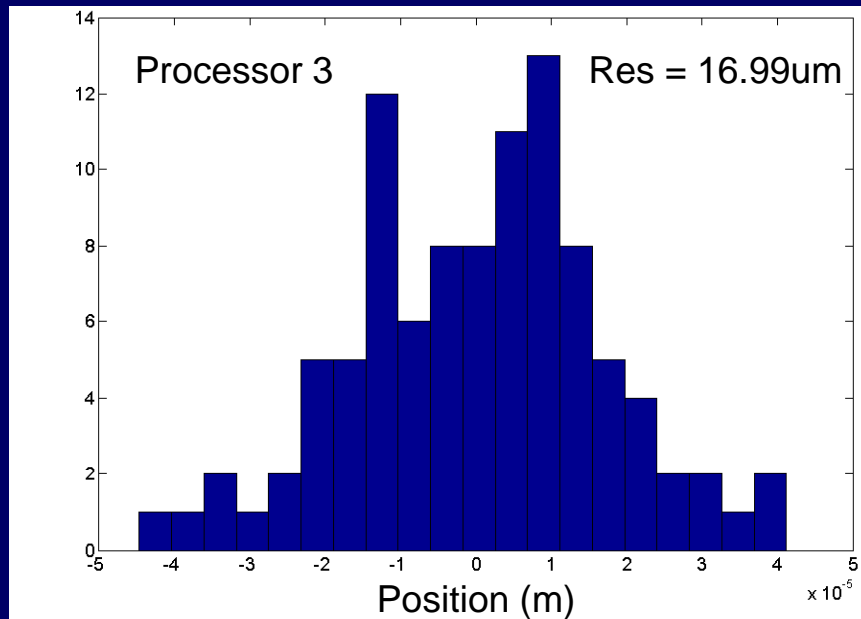
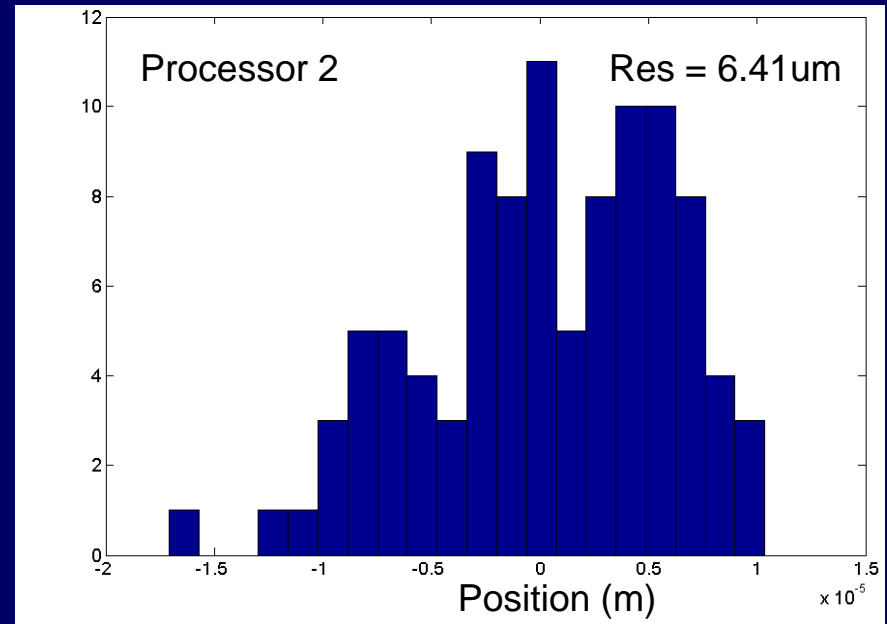
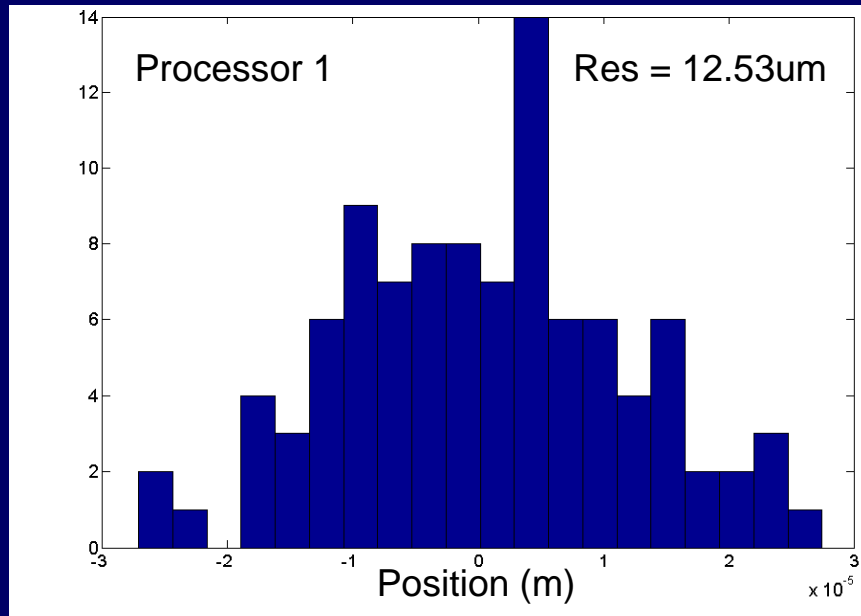
Calibration (bunch 3)



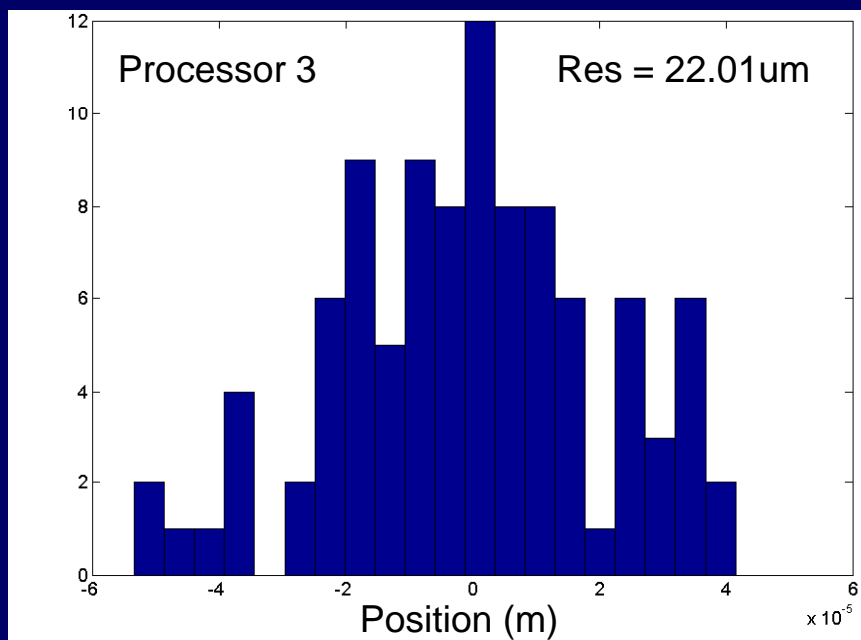
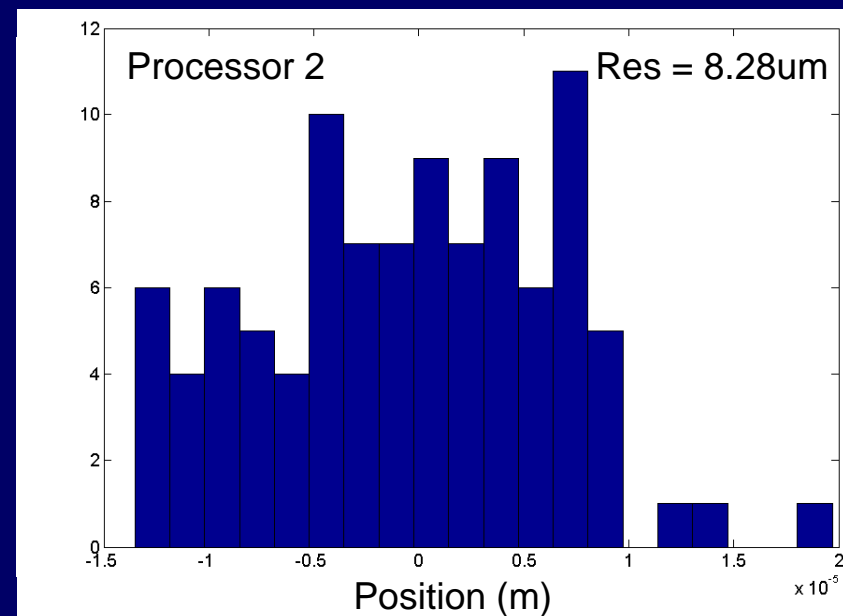
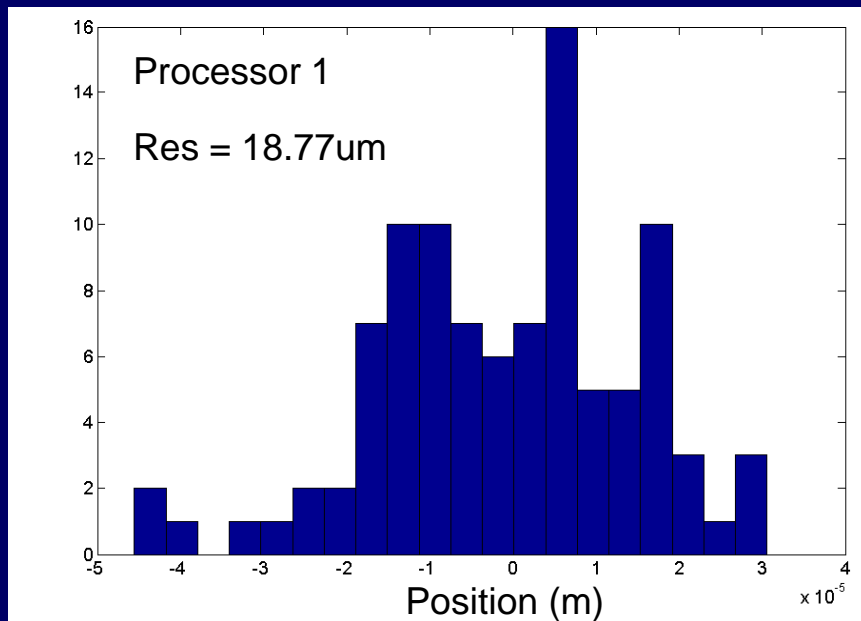
Resolution (bunch 1)



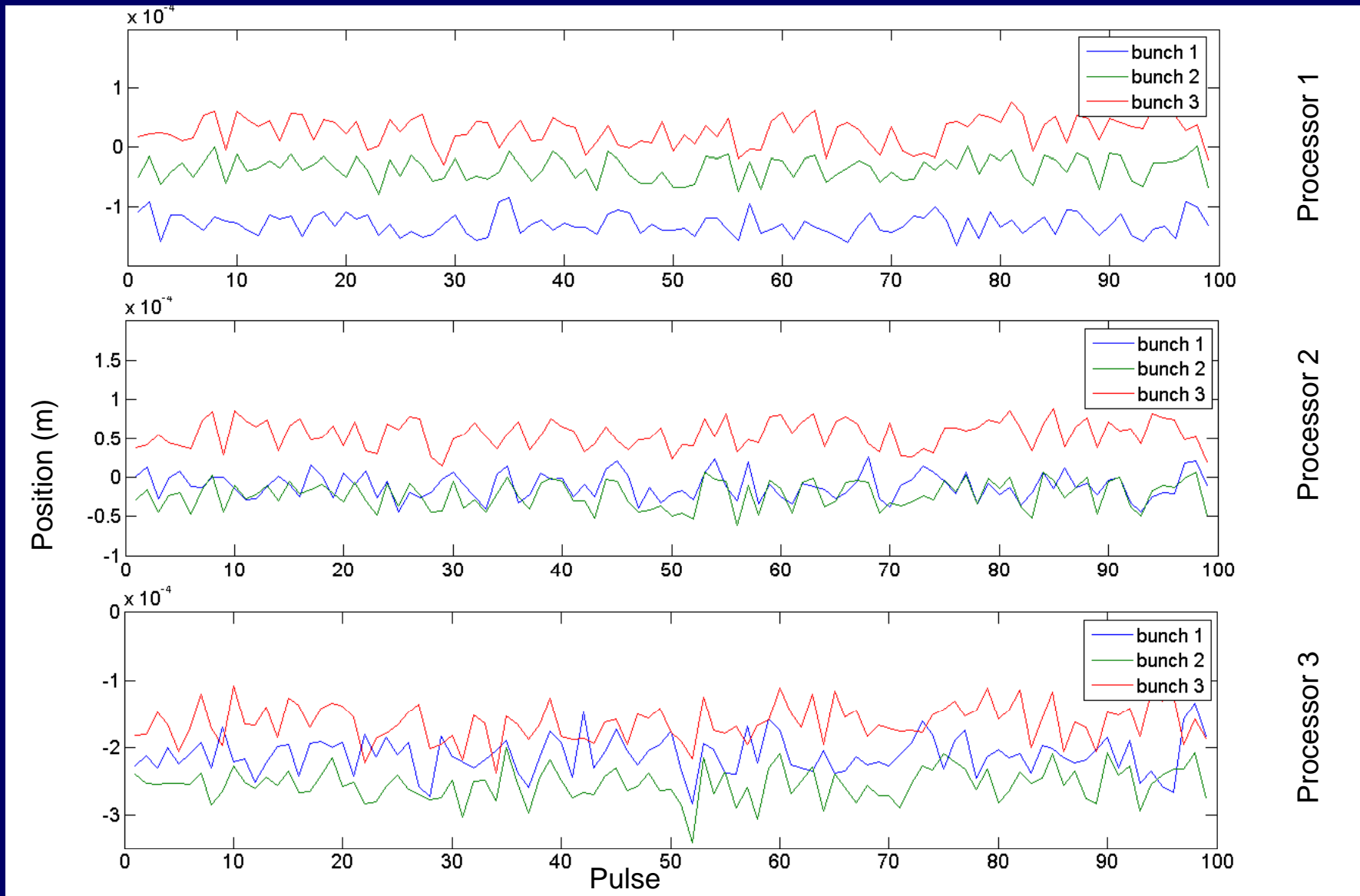
Resolution (bunch 2)



Resolution (bunch 3)



Bunch comparison



Results

Using jitter between bunches gives resolution numbers of;

P1 = 13, 28 & 14um

P2 = 12, 21 & 11um

P3 = 21, 28 & 19um

between bunches 1&2, 1&3, 2&3 respectively

Glenn shows ~1um!