

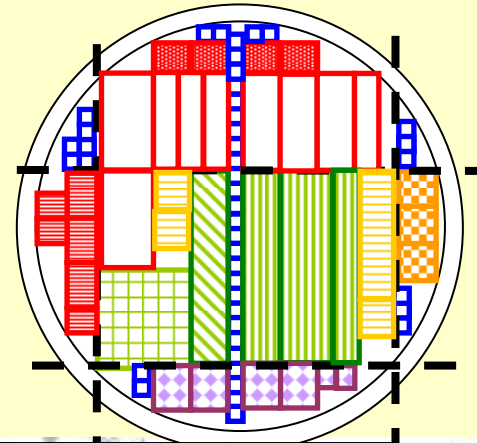
# RD50 Common 6" Wafer Submission to Micron

Contract, OYA WQD, 11-18, 2006

(Wafer assembly by Gianluigi Casse et al.)

## Goals:

- a. P-type isolation study (combined p-stop & p-spray)
- b. Geometry dependence
- c. Charge collection studies
- d. Noise studies
- e. System studies: cooling, high bias voltage operation,
- f. Different materials (MCz, FZ, DOFZ)
- g. Thickness



Diameter	Type	Orientation	Silicon	Ohm-cm	Thickness (μm)	No. Of wafers	Structure
6 inch	P-Type	<100>	FZ	11000	300	36	N - P
6 inch	P-Type	<100>	MCZ	1000	300	25*	N - P
6 inch	N-Type	<100>	MCZ	500	300	20*	P - N
6 inch	N - Type	<100>	FZ	3000	300	5	P - N
6 inch	N - Type	<100>	MCZ	500	300	5*	N - N
6 inch	N - Type	<100>	FZ	3000	300	5	N - N

•\* Supplied by Brookhaven National Laboratory at 500 micron thickness

6th

# RD50 Common 6" Wafer Submission: Devices

## Common with 4"

Inst.	Device	# of dev.	Footprint	Pitch	# of strips	Len gth	Metal	Bias	Coupling	Isolation	w/p	p-implant
4"	Short strips	1	3.1 x 1.2	80	128	3	single	poly 1M	AC	Comb p	0.3	24

## Common with 6"

Inst.	Device	# of dev.	Footprint	Pitch	# of strips	Len gth	Metal	Bias	Coupling	Isolation	w/p	p-implant
UCSC	Short strips	1	6.2 x 0.80	50	128	2 x 3	Single	poly 1M	AC	Mod p	0.3	10
UCSC	Short strips	1	6.2 x 1.2	80	128	2 x 3	Single	poly 1M	AC	Mod p	0.3	30
UCSC	Short strips	1	6.2 x 1.5	100	128	2 x 3	Single	poly 1M	AC	Mod p	0.3	30
UCSC	Medium strips	1	6.2 x 1.2	80	128	6	Single	poly 1M	AC	Mod p	0.3	25
BNL	2-D	1	3.2 x 3	50	256	6	Single		DC	p-spray	0.6	
Ioffe	very short strips	3	1.2 x 1.2	100	64	~1		poly 1M	AC and DC	Mod p		
PSI etc	Pixel 1	2	1.04 x 0.98							Mod p		
PSI etc	Pixel 2	2	1.02 x 0.99							Mod p		
PSI etc	Pixel 3	2	0.62 x 0.54							Mod p		
Liverpool	Test structures	3	1 x 0.8	50	128	1	Single	poly 1M	AC	All?		
Liverpool	Test structures	4	1 x 1.2	80	128	1	Single	poly 1M	AC	All?		
Liverpool	Test structures	3	1 x 1.5	100	128	1	Single	poly 1M	AC	All?		
Syracuse	Pixel1x4	1	0.85x3.93	50	22x128x4		Single		dc	mod p		28um (n+ implant)
Syracuse	Pixel 1x1	3	0.85X1.14	50	22x128		Single		dc	Mod p		28um(n+ implant)
4"	Short strips	1	3.1 x 1.2	80	128	3	single	poly 1M	AC	Comnb p	0.3	24

# 6th "Hiroshima" Symposium

## RD50 Common 6" Wafer Submission: Schedule

Phase 1: Mask Set Procurement NRE: May 2006 - June 2006:

Phase 2: Batch 1 Wafers Processed & Measured July – September 2006

Phase 3: Batch 2 Wafers Processed & Measured October – December 2006

Phase 4: Batch 3 Wafers Processed & Measured January 2007 - March 2007

Add 3 months because of delay in getting the P.O. out?

Type	Silicon	Structure	Batch 1	Batch 2	Batch 3	#. of Wafers
P-Type	FZ	N – P	8	10	16	34
P-Type	MCZ	N – P	6	9	10	25*
N-Type	MCZ	P – N / N-N	6	10	9	25*
N - Type	FZ	P – N / N-N	2	4	4	5

•\* Supplied by Brookhaven National Laboratory at 500 micron thickness