Lonnie Atkins:
MemsDesignCalculationAccelerometer.nb
Gbottom=1.72417 Gtop= 2.58625

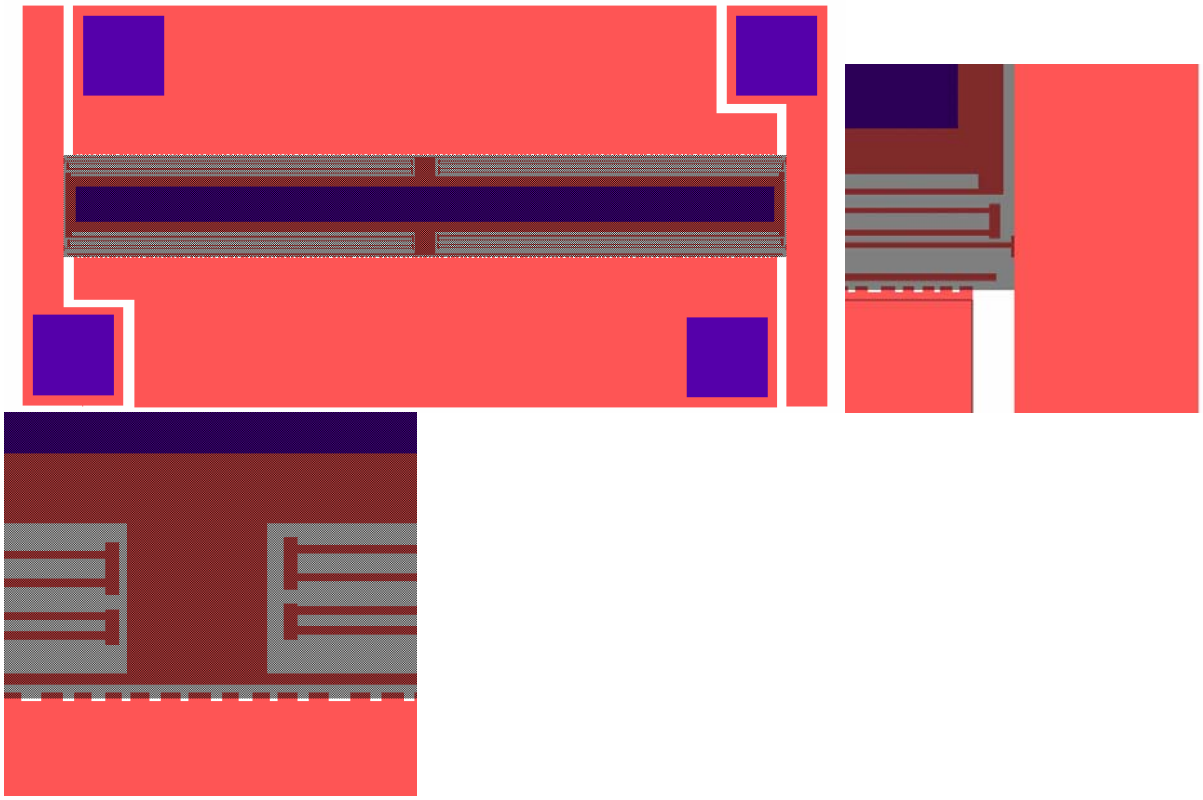
Lonnie Atkins accelerometerDesignProjectFour Cell: Cantilever

No INITIALS. I added LA.
The contact on the moving mass has winglike thin extension which will swing and cause trouble due to its vulnerability to bend. I shaved off the excess that can bend.
Very sloppy work. Tether beams are unevenly separated. Bits and pieces buried in beams. Unsymetric /different pairs of tethers. **I worked on all. I am tired of all these corrections I had to make.**
New tethers replaced the originally drawn, completely.Tethers are reduced to 500 um long. (rule)
Center of mass expanded by expanding the contact to a width of 600 um.

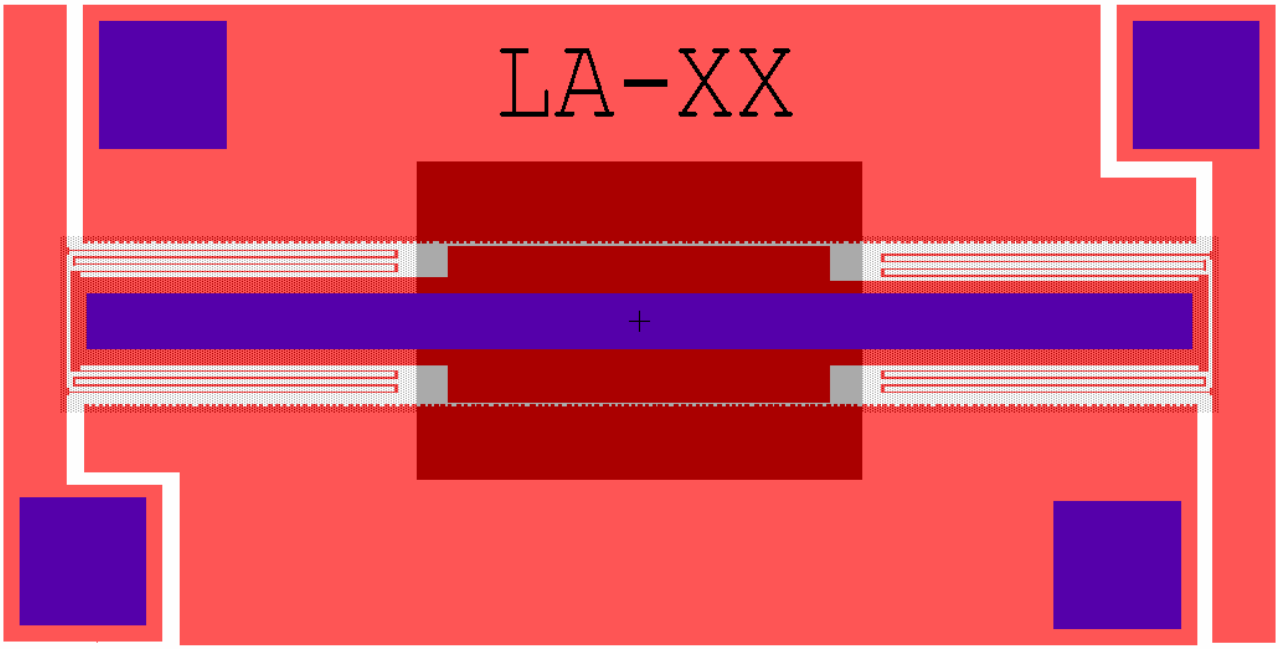
Trench layer is wrong (supposed to be Nitride, he used oxide cut instead) **I corrected that. Also, increased the size for extra margin. 10 um in each direction.**

Contact gaps of 3 u and 4 u are maintained.

Blanket metal over the contacts **is needed**. **700 x 500 um is added to cover the contacts.**
Initials are missing. Done.



Corrected New : LA-x x Cell: LA-XX



Initials in second poly: Correct it to Metal 1.

Steve Coleman (SJC) Final_accelerometer_design Cell: Cantilever

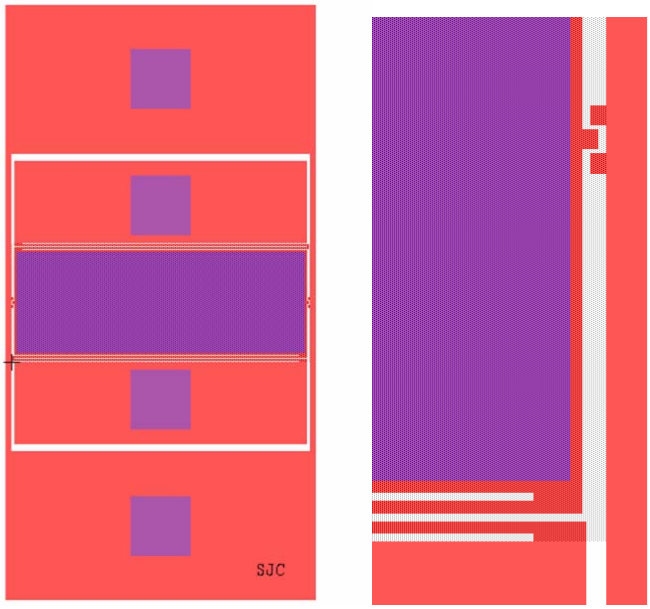
Initials Port in Second Poly (ie Blanket Metal) Layer which is impossible for fine lines (It **has to be done in Metal 1** for fine line) **Done.**

No distinction for direction. Opposite switches are electrically joined. No margin for extra swing, either. The switch contacts may break at high impact. **I will not correct that.**

Both switches have **high resistanc**e paths of current to terminal pads. Right and left switches **need to be separated**. **Accomplished by moving the SOI pieces from top bottom to left/right. Done.**

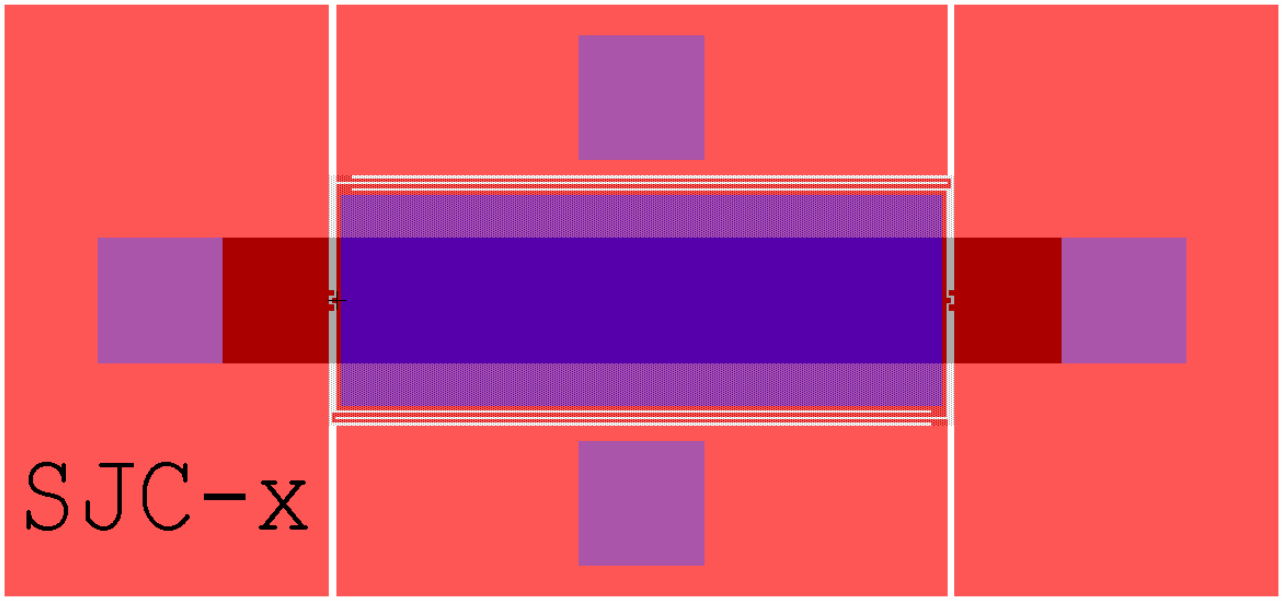
Trench: is drawn correctly, 1000um x 400 um.

Blanket metal over the contacts **is needed**. **100 um minimum can be met while reducing the high resistance. Done.**



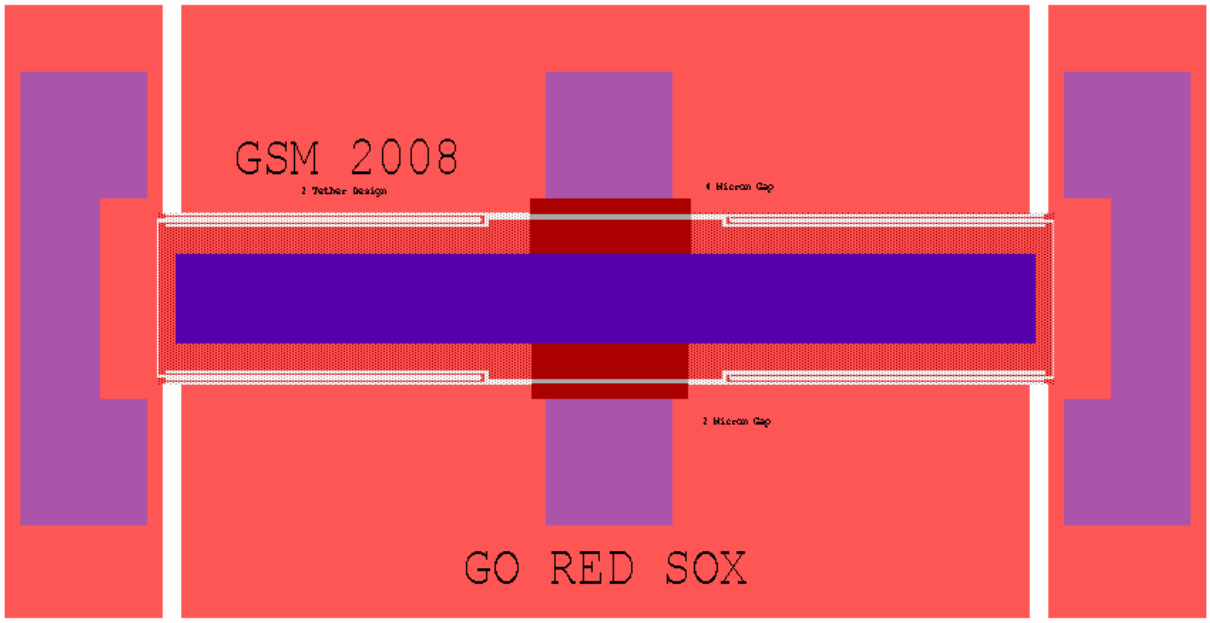
Corrected to: Final_accelerometer_design_X Cell: SJC-X

Corrected New : SJC-x Cell: SJC-X

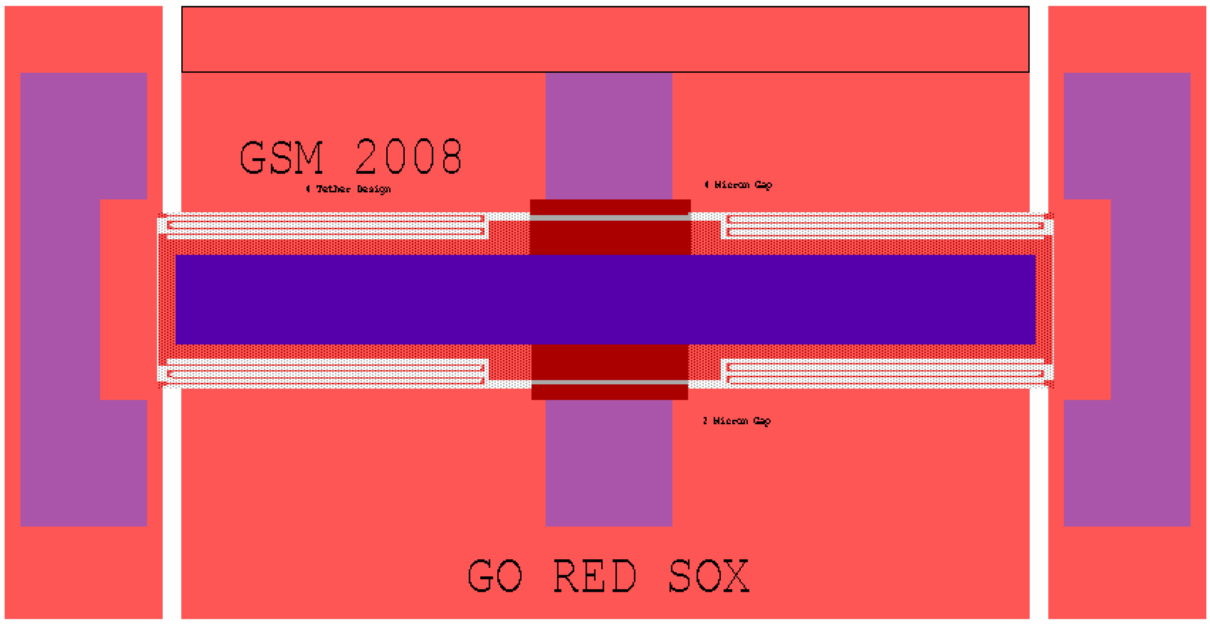


Greg Mitchell 2_Tether Design Cell: Cantilever

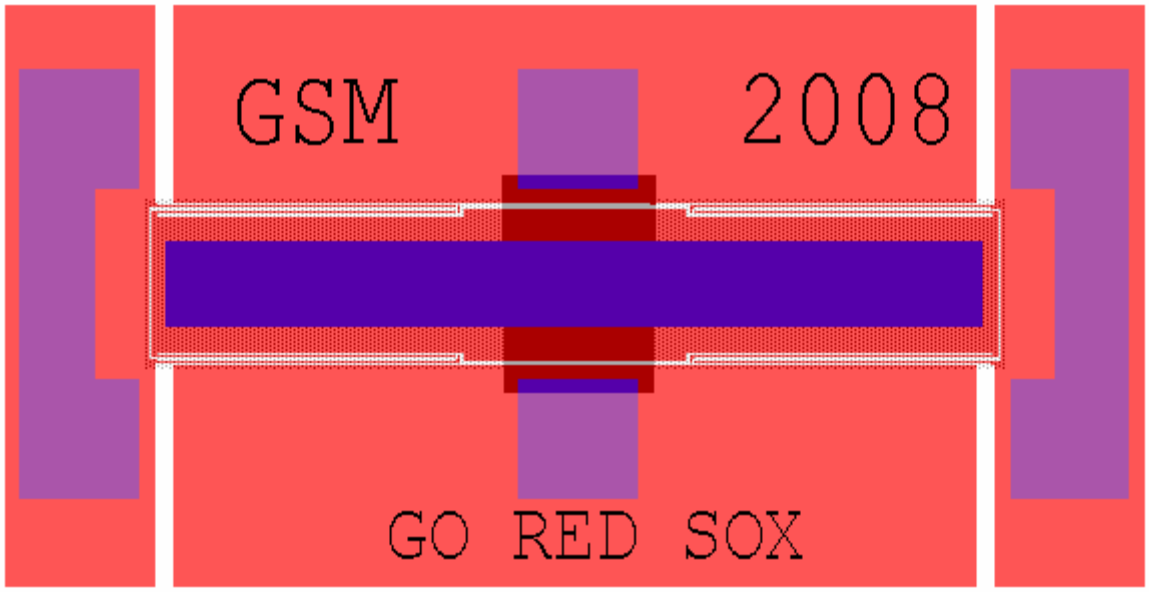
Letters written at < 200 size will not show. **(Not Fatal)**
Tethers are fine (445 < 500 um max for 2um wide beams). I will not change them.
Upper right block of SOI height reduced to 222 u to increase margin to tether and to make it same as the one on the left.
Trench: is readjusted to 1430x283 to accommodate gaps.and alignment with SOI edges (5 um into SOI in all 4 directions. **Done.**
Blanket metal over the contacts **violates** the (100 um minimum) (It is 89 um) **I increased their heights to 110 um with no change of mass on the moving body .**



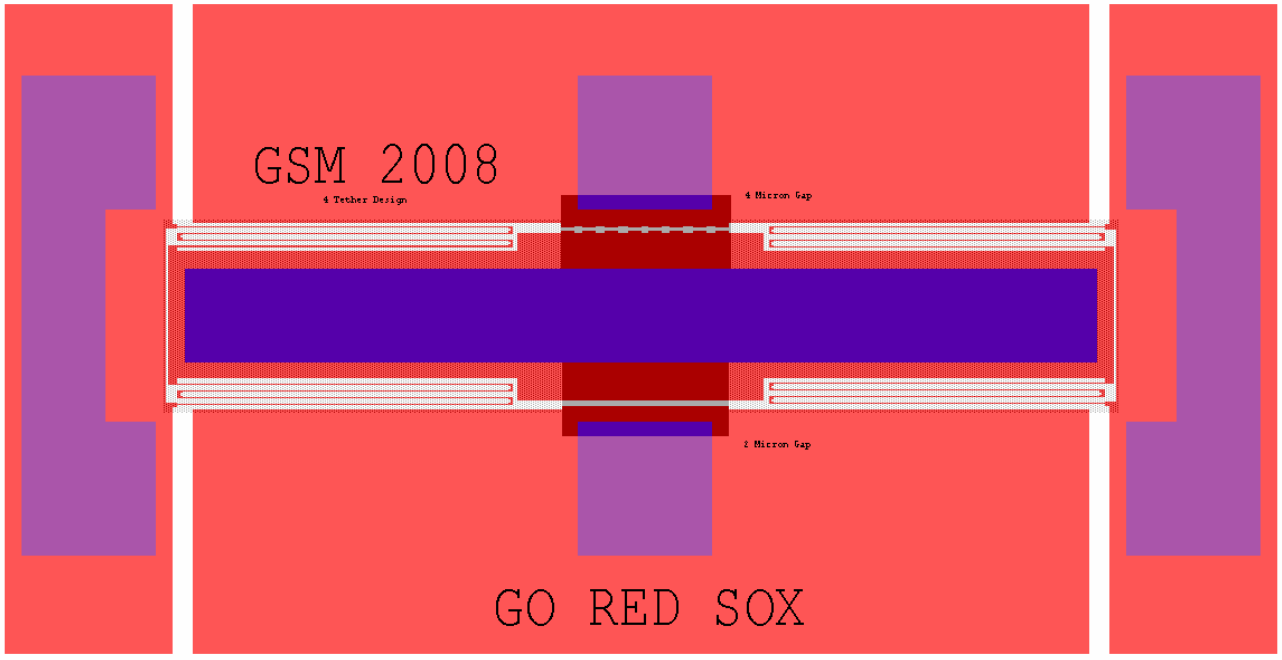
Greg Mitchell 4_Tether Design Cell: Cantilever



Corrected to: GSM2T-x Cell: GSM2T-X

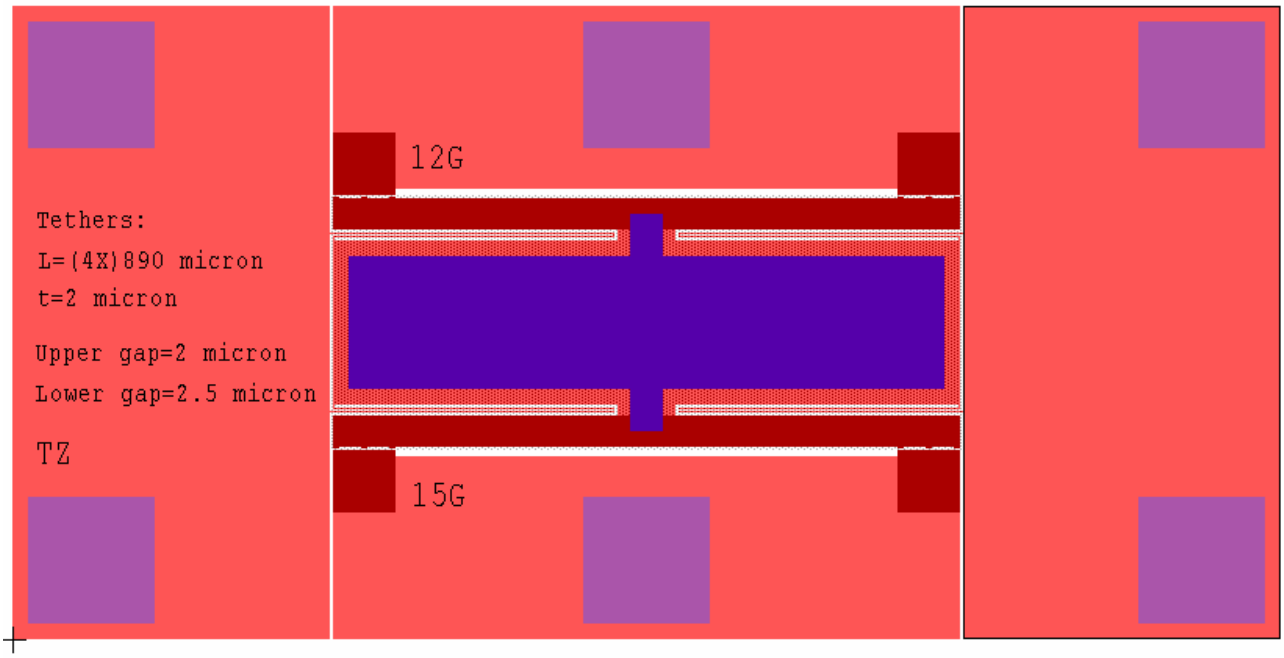


Corrected to: GSM4T-x Cell: GSM4T-X



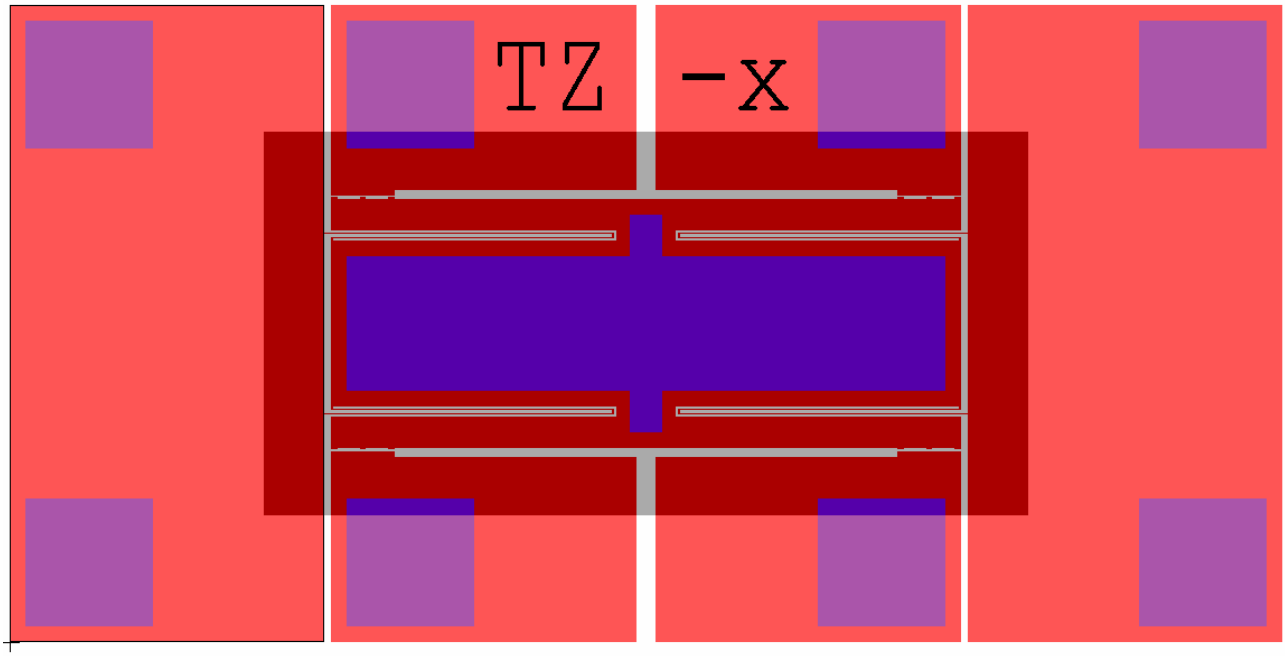
Tom Zack
Accelerometer3
Blanket metal violates 100 um rule (only 49.5um high strips and also about 45 um separations)
Ports are on Blanket gold (violates 100 um rule, change it to Metal 1.
Tom Zack Accelerometer3 Cell: Cantilever

Ports are in Blanket Metal (they violate the minimum 100 um rule). Change it to **Metal 1** layer for fine line) **Done.**
Tethers are fine (445 < 500 um max for 2um wide beams). I will not change them.
Pairs of contacts on opposite sides are connected in parallel. Confuses measurements if off-axis acceleration or spinning takes place. It is better to split contacts to two separate electrical bonding pads. **Done.**
Moving part has too small gap to stationary side SOI's blocks. Increase those gaps to >10 um to prevent friction. **(I made the gaps 10 um on each side)**
Trench: is readjusted to 1010x420 to accommodate gaps.and alignment with SOI edges. **Done.**
Tethers had to be lengthen to span the increased gaps**. DONE.**
Blanket metal over the contacts **violates** the (100 um minimum) (It is 61 by 67 um) **I added a full cover of 1200 um x 600 um . TOM has to readjust his calculations.**



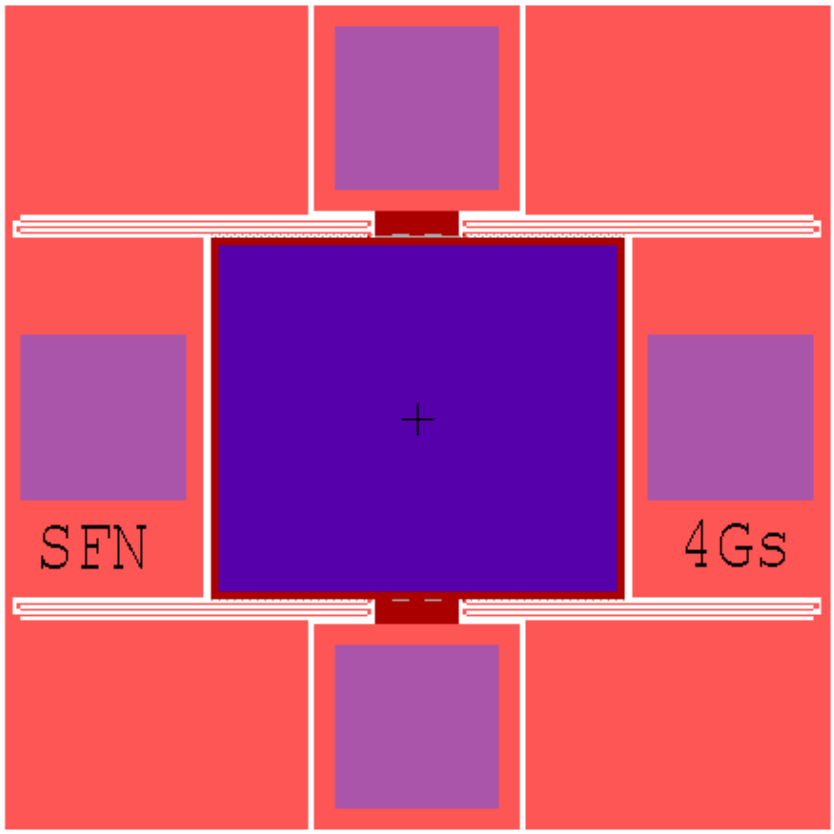
Corrected to: TZ-x Cell: TZ-X

New : TZ-x Cell: TZ-X



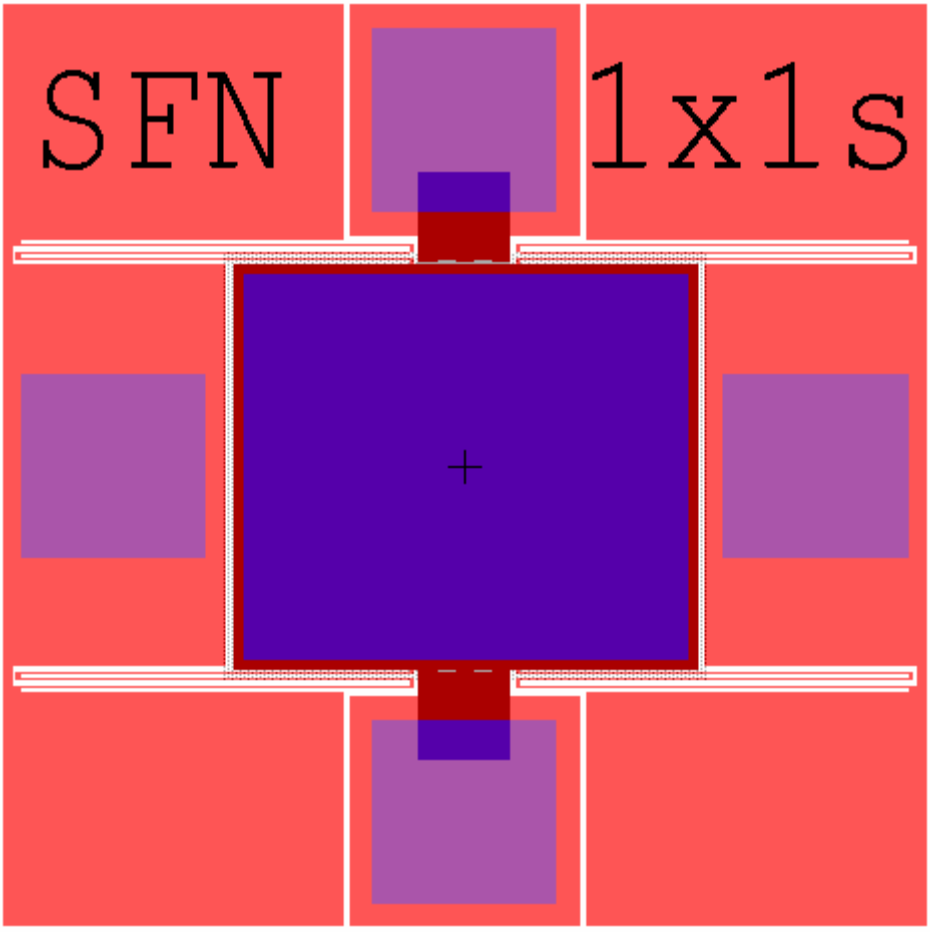
Stephen Nelson SFN 1x1_Contact to Specf Cell: Cantilever

Ports are in small (they violate the minimum 3 um rule). Change isizes to 200 units. **Done.**
Trench: needs a margin > 5 u. I extended the original size by 10 um in both directions finally becoming adjusted to 2x263x2x232 to accommodate gaps.and alignment with SOI edges. **Done.**
Blanket metal over the contacts **violates** the (100 um minimum) (It is 100 by 62 um) **I increased it to 100 u x 100u.**



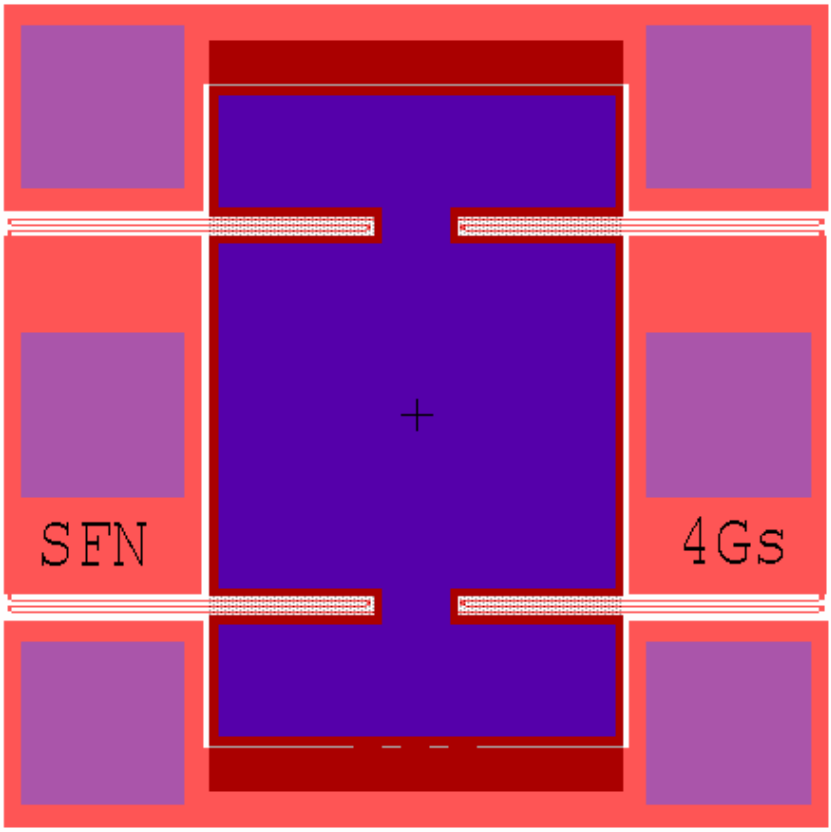
Corrected to: SFN1x1S -x Cell: SFN1x1S

Corrected New: **SFN1x1S-x** **Cell:** **SFN1x1S**



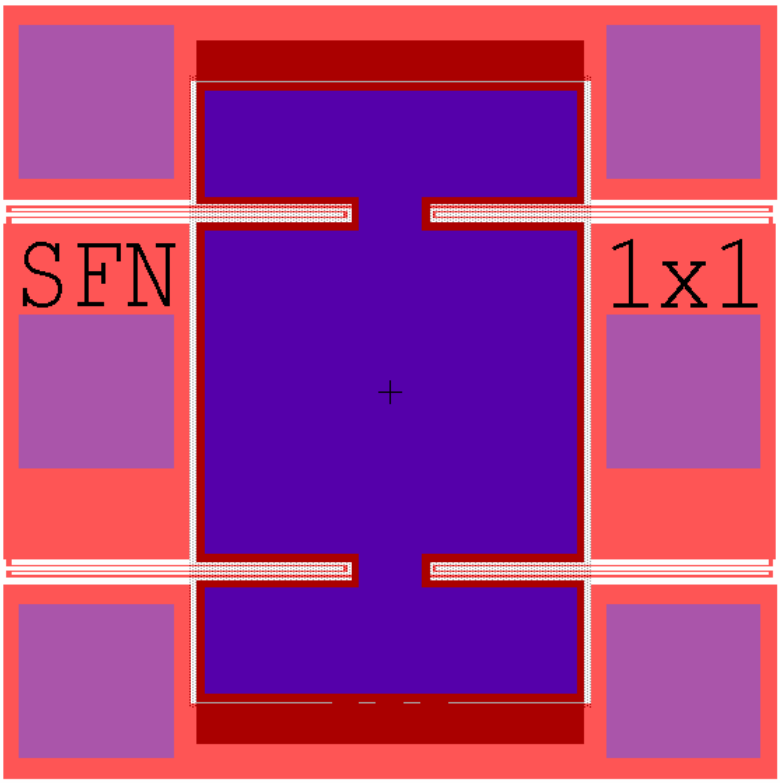
Stephen Nelson SFN 1x1_Contact Cell: Cantilever

Ports are in small (they violate the minimum 3 um rule). Change isizes to 150 units. **Done.**
Trench: needs a margin > 5 u. I extended the original size by 10 um in both directions finally becoming adjusted to 2x260x2x410 to accommodate gaps.and alignment with SOI edges. **Done.**



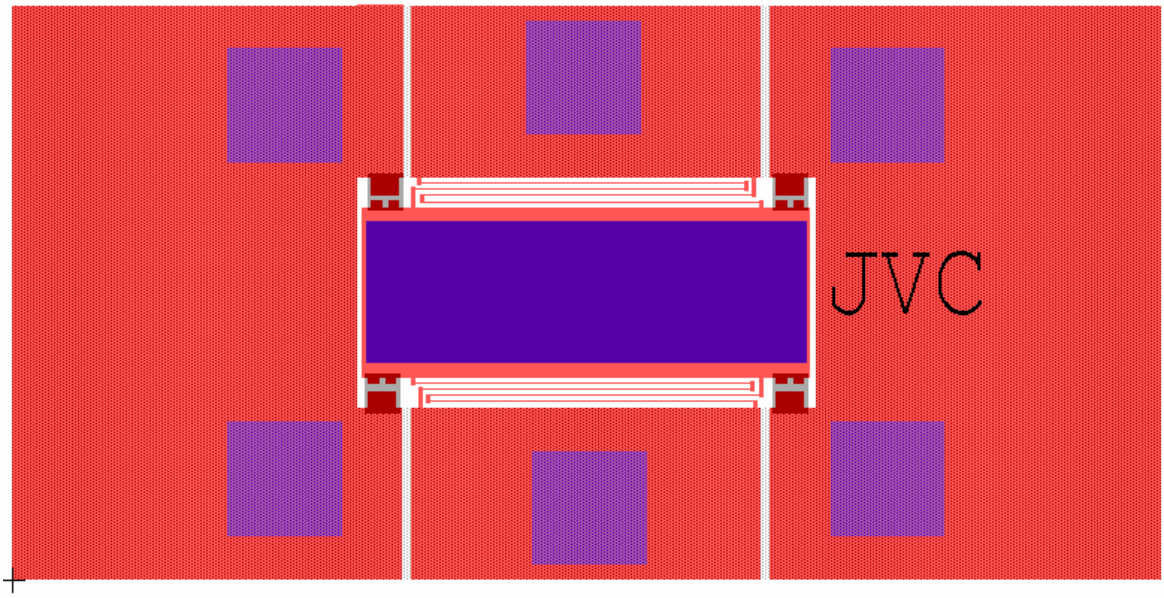
Corrected to: SFN1x1 -x Cell: SFN1x1S

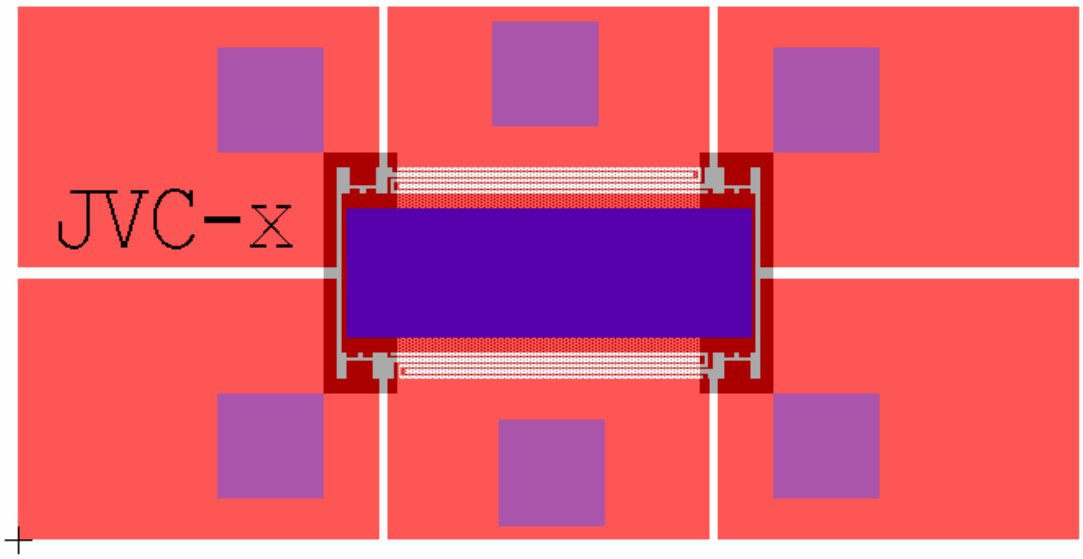
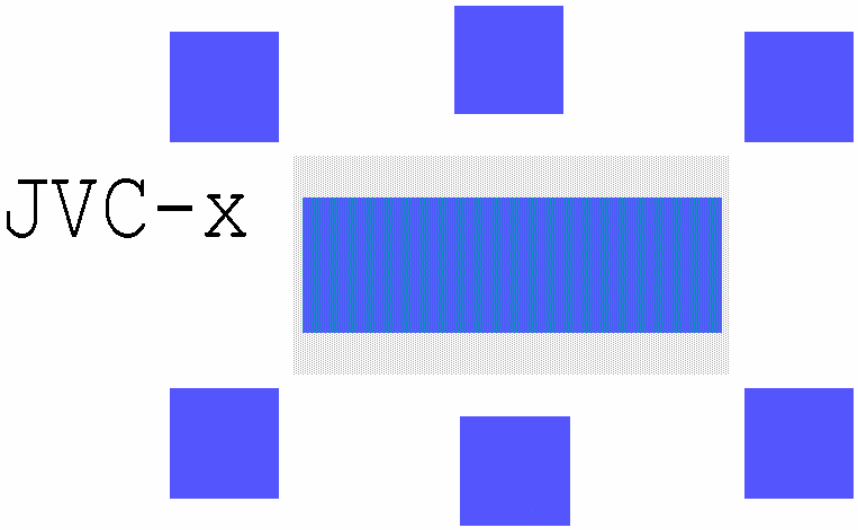
Corrected New: **SFN1x1-x** **Cell:** **SFN1X1-X**



John V. Crosby PRJ1 Cell: JVC

Port in Nitride Layer (Trench) which is impossible (**needs to be done in Metal 1** for fine line) **Done.**
Large and small gaps are connected in parallel. Confuses measurements. SOI patterns need to be **split apart** for electrically separated terminals. **(I left 20 um gap for isolation)**
Trench: is drawn as Not-Nitride (800um * 400 um). **Trench pattern needs to be inverted.**
Tether pieces touch each other before a contact is made (9 and 12 um contact gaps, 6 um room to touch between tethers). **I trimmed all excess supporting pieces for stress at tether joints and reduced contact gaps to 4 um and 6 um.** Otherwise it would fail.
Excess SOI piece to be reduced by 1 um (not critical) **Done for beauty.**
Blanket metal over the contacts **violates** the (100 um minimum) (It is 61 by 67 um) **I have increased it to 140 um x 450 um on both pairs of contacts.**



Corrected to: JVC-x Cell: JVC-x

New : JVC-x Cell: JVC-x