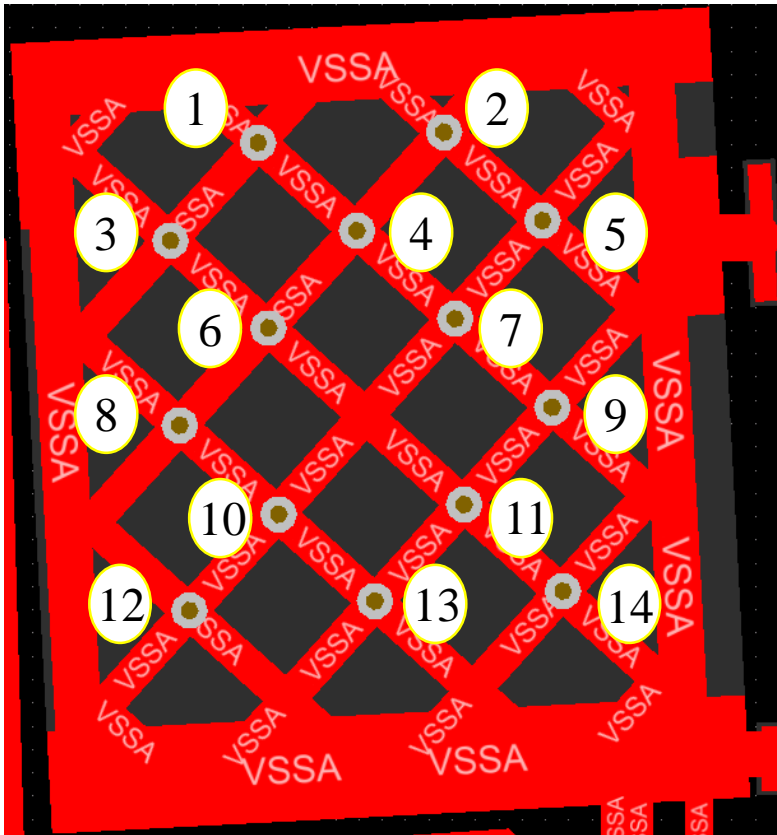


# Hybrid & T-board Via Dimension

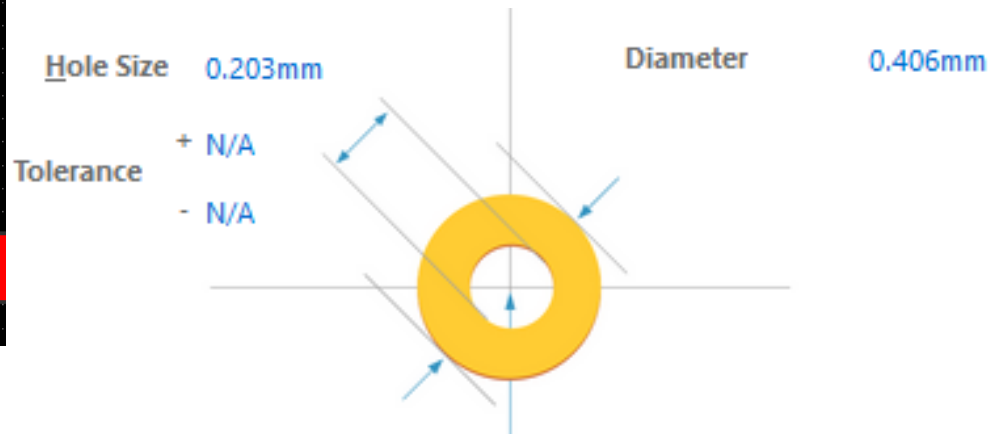
Jianing DONG & Li YI

2019.02.02

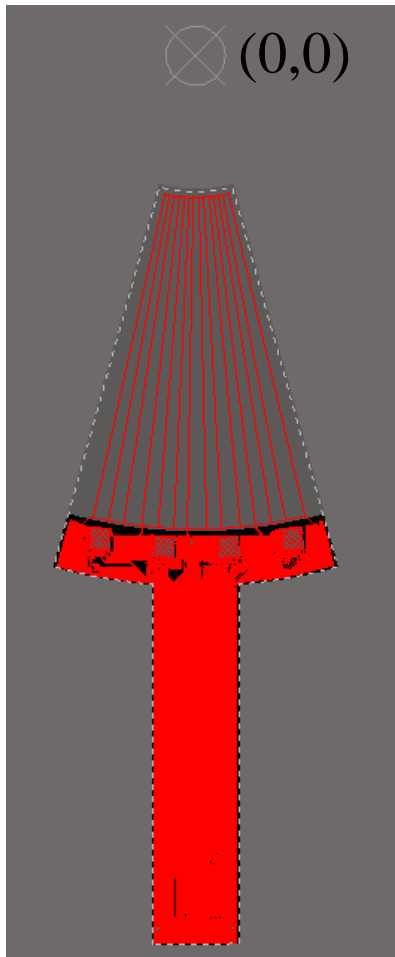
# APV25



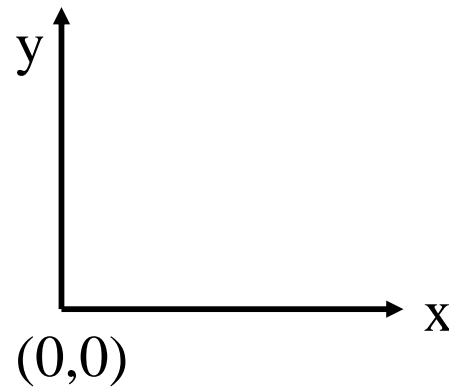
- The footprint of APV25 chip is exactly the same as that used in IST including the thermal conductive vias. There are 14 vias of 0.203 mm aperture for each chip.



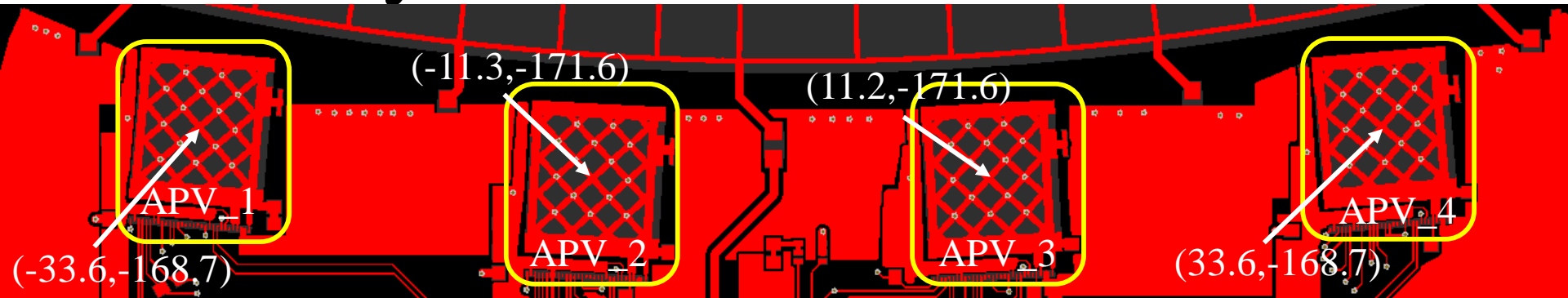
# Inner hybrid



- The coordinate of the APV25 chips and the vias for inner hybrid can be found in the following slides (take the center of the sector as  $(0,0)$ ).



# Inner hybrid



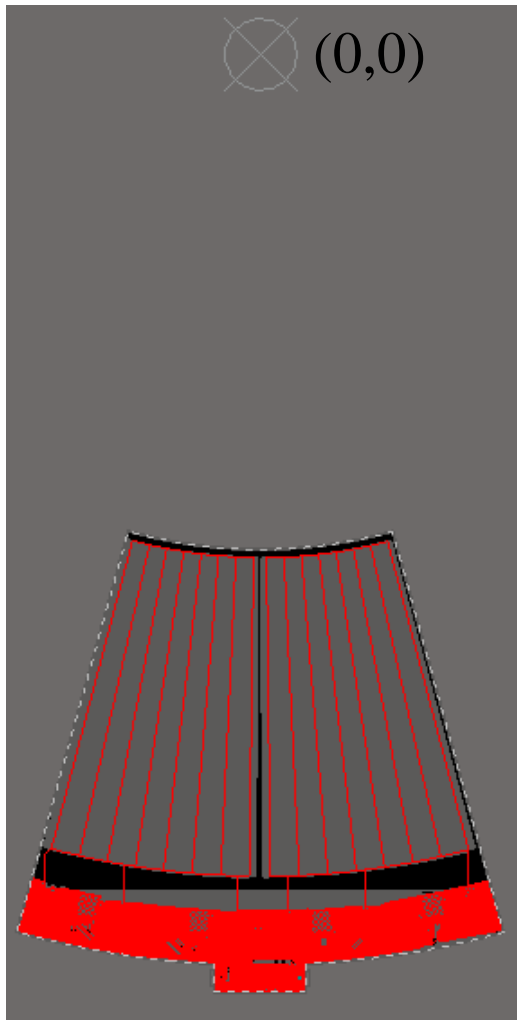
- 1.(-34.3,-165.6)
- 2.(-32.3,-165.8)
- 3.(-35.4,-166.5)
- 4.(-33.4,-166.7)
- 5.(-31.4,-166.9)
- 6.(-34.5,-167.6)
- 7.(-32.5,-167.8)
- 8.(-35.6,-168.5)
- 9.(-31.5,-168.9)
- 10.(-34.7,-169.6)
- 11.(-32.6,-169.8)
- 12.(-35.8,-170.5)
- 13.(-33.8,-170.7)
- 14.(-31.7,-170.9)

- 1.(-12.1,-168.5)
- 2.(-10.0,-168.6)
- 3.(-13.2,-169.5)
- 4.(-11.1,-169.6)
- 5.(-9.1,-169.7)
- 6.(-12.2,-170.6)
- 7.(-10.2,-170.7)
- 8.(-13.3,-171.5)
- 9.(-9.2,-171.7)
- 10.(-12.3,-172.6)
- 11.(-10.3,-172.7)
- 12.(-13.4,-173.5)
- 13.(-11.4,-173.6)
- 14.(-9.3,-173.7)

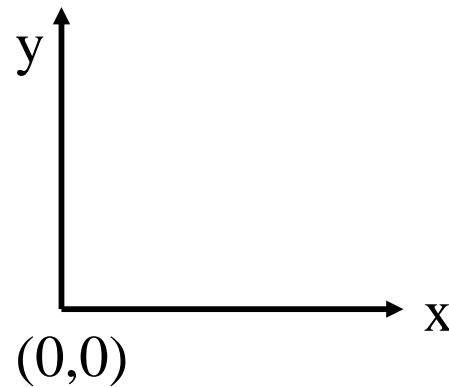
- 1.(10.1,-168.6)
- 2.(12.1,-168.5)
- 3.(9.1,-169.7)
- 4.(11.1,-169.6)
- 5.(13.2,-169.5)
- 6.(10.2,-170.7)
- 7.(12.2,-170.5)
- 8.(9.2,-171.7)
- 9.(13.3,-171.5)
- 10.(10.3,-172.7)
- 11.(12.3,-172.6)
- 12.(9.3,-173.7)
- 13.(11.3,-173.6)
- 14.(13.4,-173.5)

- 1.(32.3,-165.7)
- 2.(34.3,-165.6)
- 3.(31.4,-166.8)
- 4.(33.4,-166.6)
- 5.(35.4,-166.5)
- 6.(32.5,-167.8)
- 7.(34.5,-167.6)
- 8.(31.5,-168.9)
- 9.(35.6,-168.5)
- 10.(32.6,-169.8)
- 11.(34.7,-169.6)
- 12.(31.7,-170.8)
- 13.(33.7,-170.7)
- 14.(35.8,-170.5)

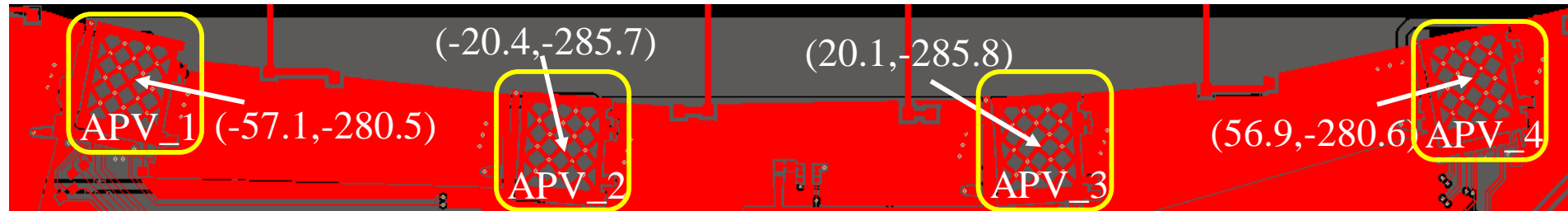
# Outer hybrid



- The coordinate of the APV25 chips and the vias for outer hybrid can be found in the following slides (take the center of the sector as  $(0,0)$ ).



# Outer hybrid



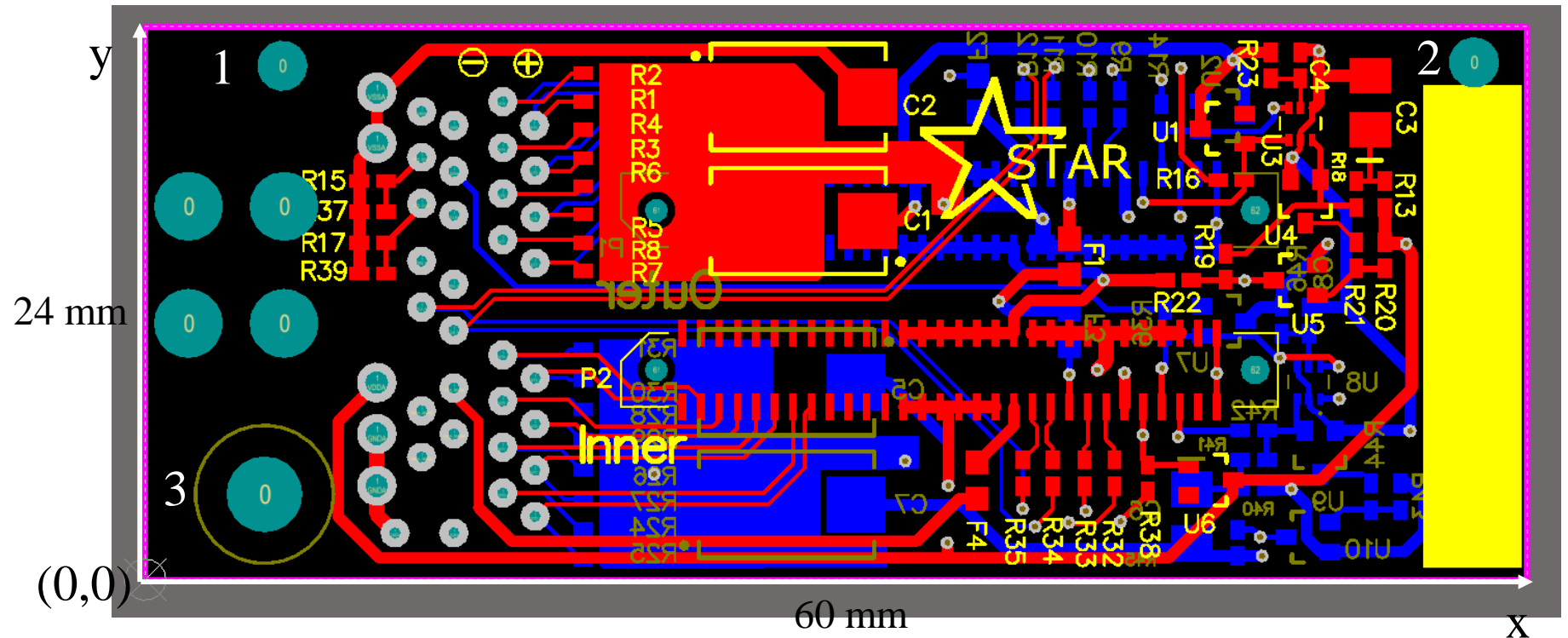
- 1.(-57.5,-277.4)
- 2.(-55.5,-277.8)
- 3.(-58.7,-278.2)
- 4.(-56.7,-278.6)
- 5.(-54.7,-279.0)
- 6.(-57.9,-279.4)
- 7.(-55.9,-279.8)
- 8.(-59.1,-280.1)
- 9.(-55.1,-281.0)
- 10.(-58.3,-281.4)
- 11.(-56.3,-281.8)
- 12.(-59.5,-282.1)
- 13.(-57.6,-282.6)
- 14.(-55.6,-283.0)

- 1.(-21.2,-282.6)
- 2.(-19.2,-282.8)
- 3.(-22.3,-283.6)
- 4.(-20.2,-283.7)
- 5.(-18.2,-283.9)
- 6.(-21.3,-284.7)
- 7.(-19.3,-284.8)
- 8.(-22.4,-285.6)
- 9.(-18.4,-285.9)
- 10.(-21.5,-286.7)
- 11.(-19.5,-286.8)
- 12.(-22.6,-287.6)
- 13.(-20.6,-287.8)
- 14.(-18.5,-287.9)

- 1.(18.9,-282.8)
- 2.(20.9,-282.7)
- 3.(17.9,-283.9)
- 4.(19.9,-283.8)
- 5.(21.9,-283.6)
- 6.(19.0,-284.8)
- 7.(21.0,-284.7)
- 8.(18.0,-285.9)
- 9.(22.1,-285.7)
- 10.(19.1,-286.9)
- 11.(21.1,-286.7)
- 12.(18.2,-287.9)
- 13.(20.2,-287.8)
- 14.(22.2,-287.7)

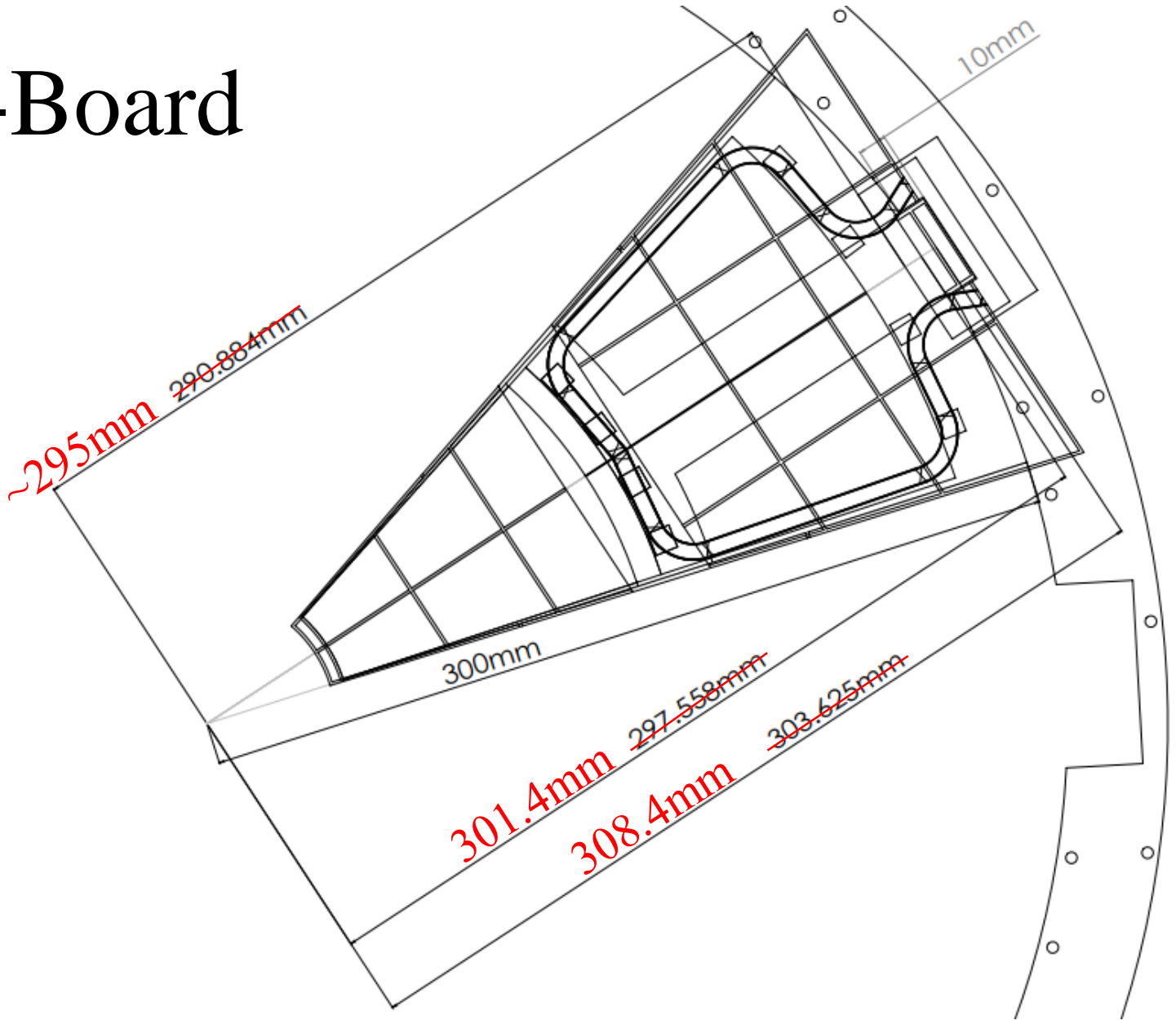
- 1.(55.3,-277.8)
- 2.(57.3,-277.4)
- 3.(54.5,-279.0)
- 4.(56.5,-278.6)
- 5.(58.4,-278.2)
- 6.(55.7,-279.8)
- 7.(57.7,-279.4)
- 8.(54.9,-281.0)
- 9.(58.9,-280.2)
- 10.(56.1,-281.7)
- 11.(58.1,-281.3)
- 12.(55.3,-283.0)
- 13.(57.3,-282.6)
- 14.(59.3,-282.1)

# T-Board



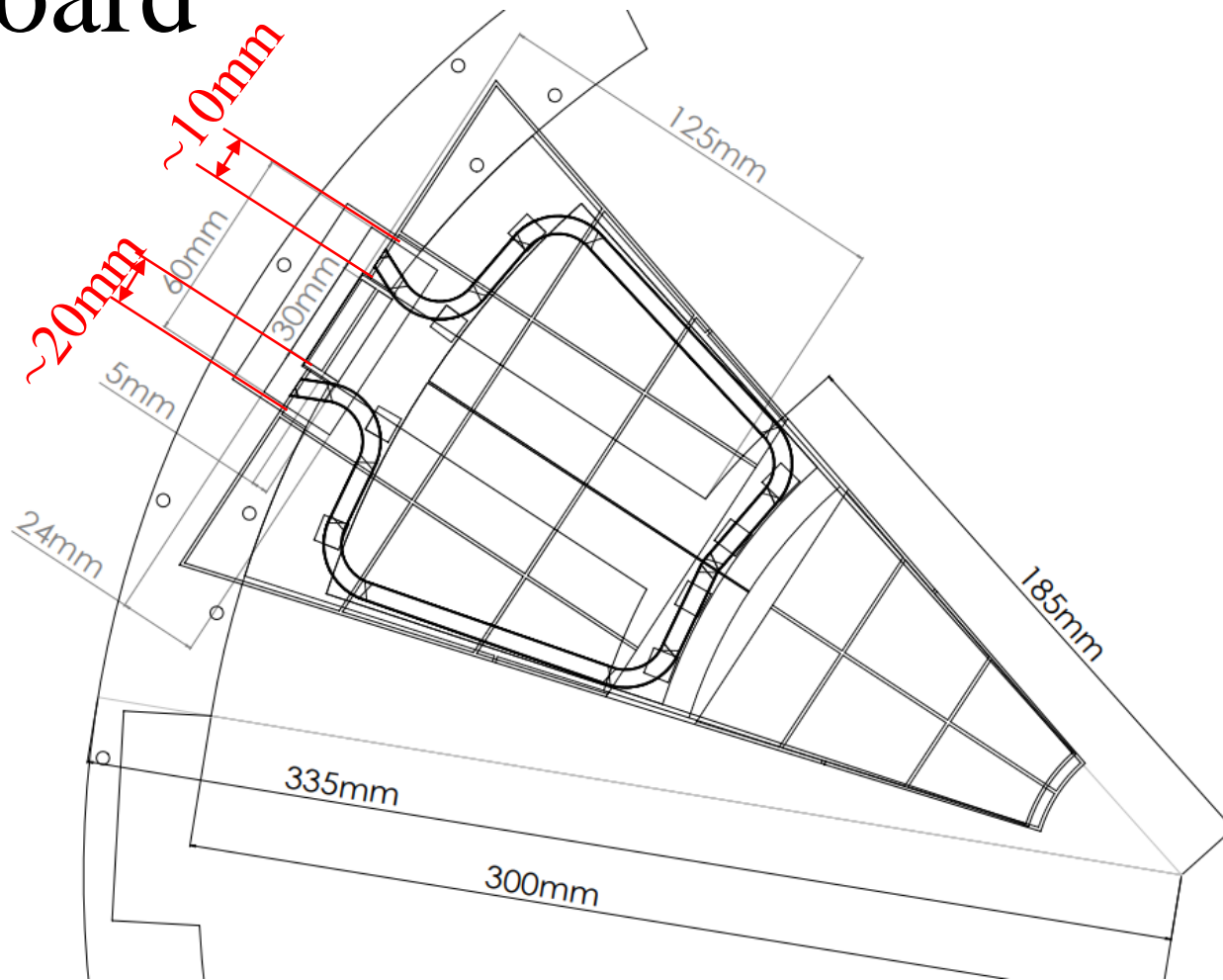
- ❑ Currently, 3 mechanical holes are placed in uncertain positions.
  - hole #1:  $\Phi 2.2$  mm, (5.95,22.3)
  - hole #2:  $\Phi 2.2$  mm, (57.5,22.45)
  - hole #3:  $\Phi 3.3$  mm, (5.175,3.7)
- ❑ Mechanical holes cannot be placed during the period ( $7.75 < x < 55.3$ ) in current design.

# T-Board





# T-Board



- ❑ Look from the inner hybrid to the outer hybrid.
- ❑ The inner hybrid is the top layer.

# Hybrid design for IST

Extention	Description	Material
.GTO	Top Silk Screen	White
.GCL	Top Cover Lay (cutouts)	Natural
.GTS	Top Solder Mask (neg)	Natural
----	Adhesive	1 mil Adhesive
.GTL	Top Copper	1/2 Oz. Cu
Core	Kapton (dims in .GKO)	1 mil Kapton
.GBL	Bottom Copper	1/2 Oz. Cu
----	Adhesive (2ndCore)	1 mil Adhesive
.GM4	Kapton (2ndCore)	1 mil Kapton
.GP1	End Piece Copper (neg)	1/2 Oz. Cu
----	Adhesive	1 mil Adhesive
.GBS	Bottom Coverlay (neg)	1 mil Kapton
.GM16	Title Block	n/a
.GKO	Board Outline	n/a
.GM4	End Piece Copper Outline	n/a
.TXT	Drill File	

- We plan to use the same hybrid design as IST.
- We will confirm it after the company start to work.