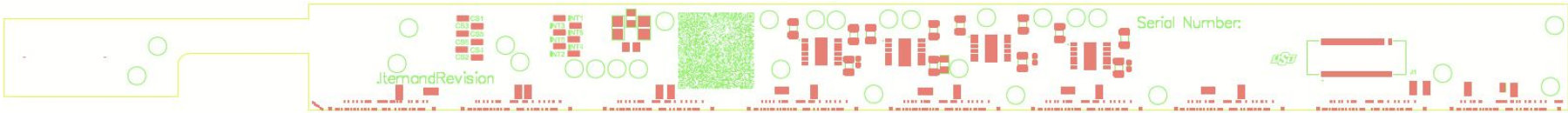
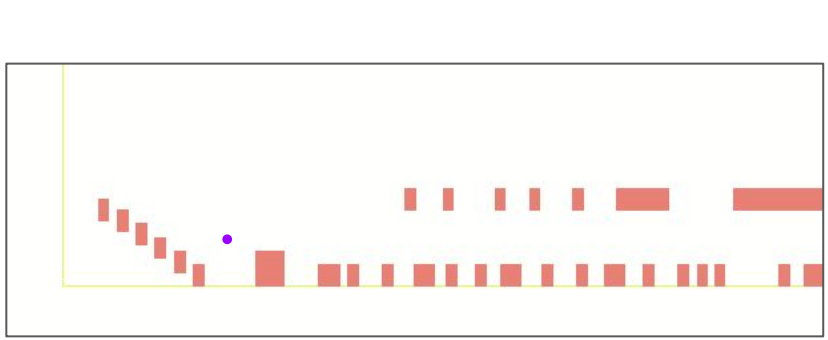
Chip Alignment on Modules

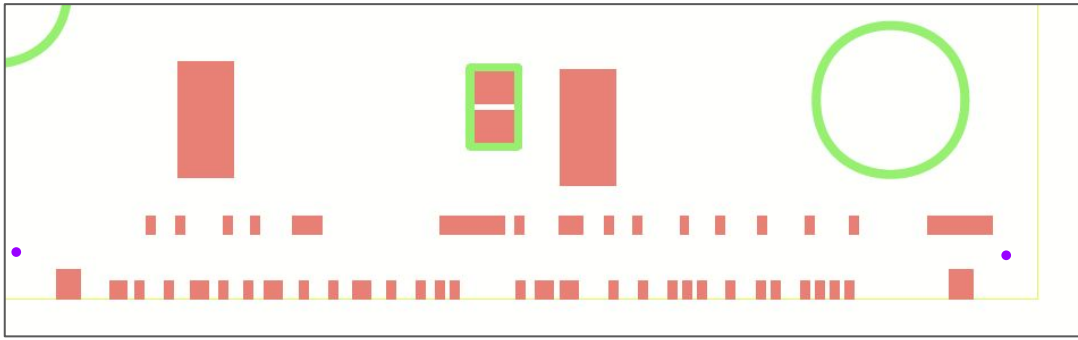
SCIPP

2 June 2025

Add fiducials to hybrid on the top metal layer





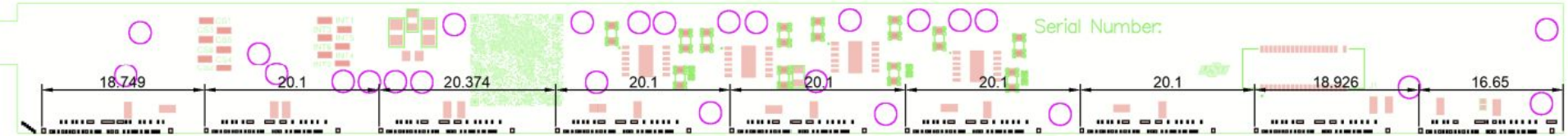


~200um diameter circles
Minimum: one on left edge near bondpads (but not under any wires) and one on right edge near bondpads
Additional circles in between chip locations would be helpful if possible

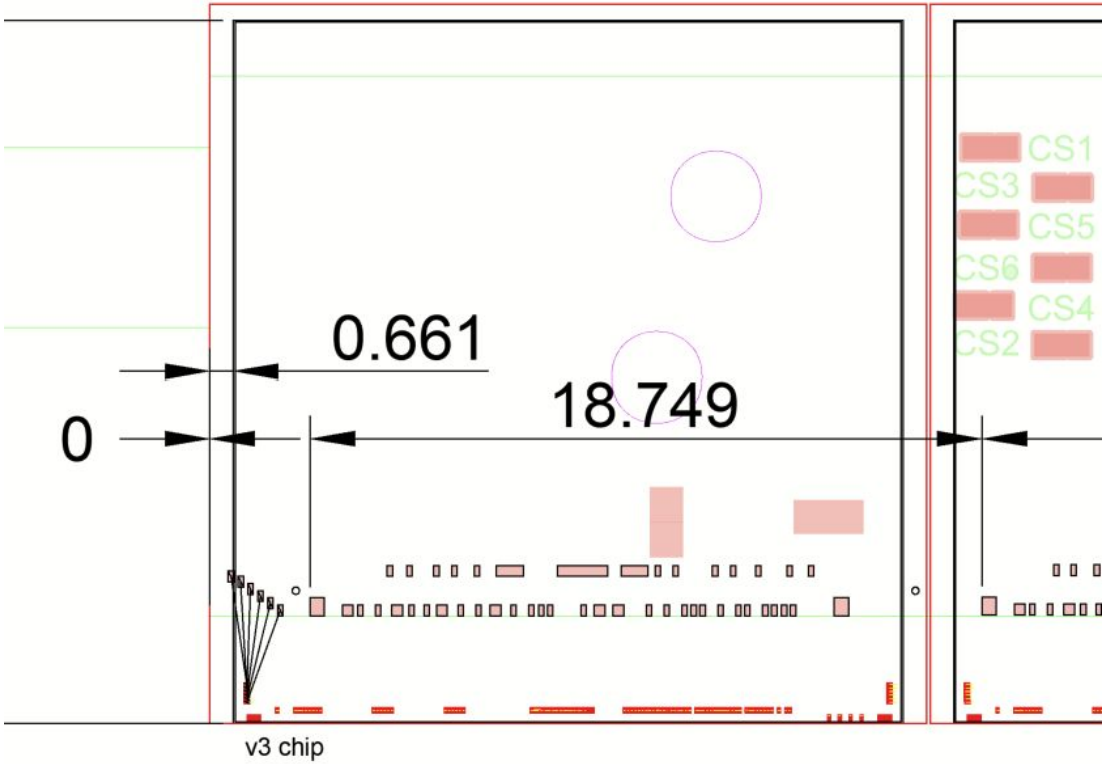
v6 chips will be 20.0mm x 20.0mm with 100um pitch
v3 and v5 chips will be 18.7mm x 19.575mm

So how best to align the chips to the extrusion and the hybrid???

Hybrid pitch is currently 20.1mm (except in 2nd to last chip)

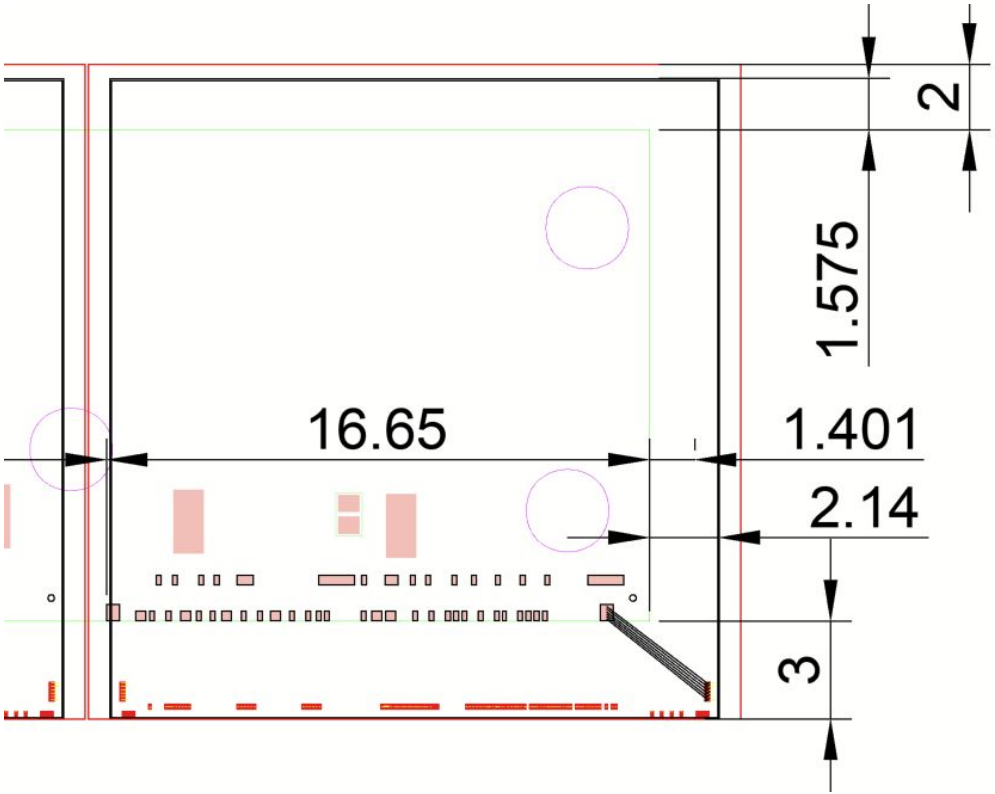


Option 1: Hybrid aligned far left
Chips aligned at bottom edge
Chips centered in pocket



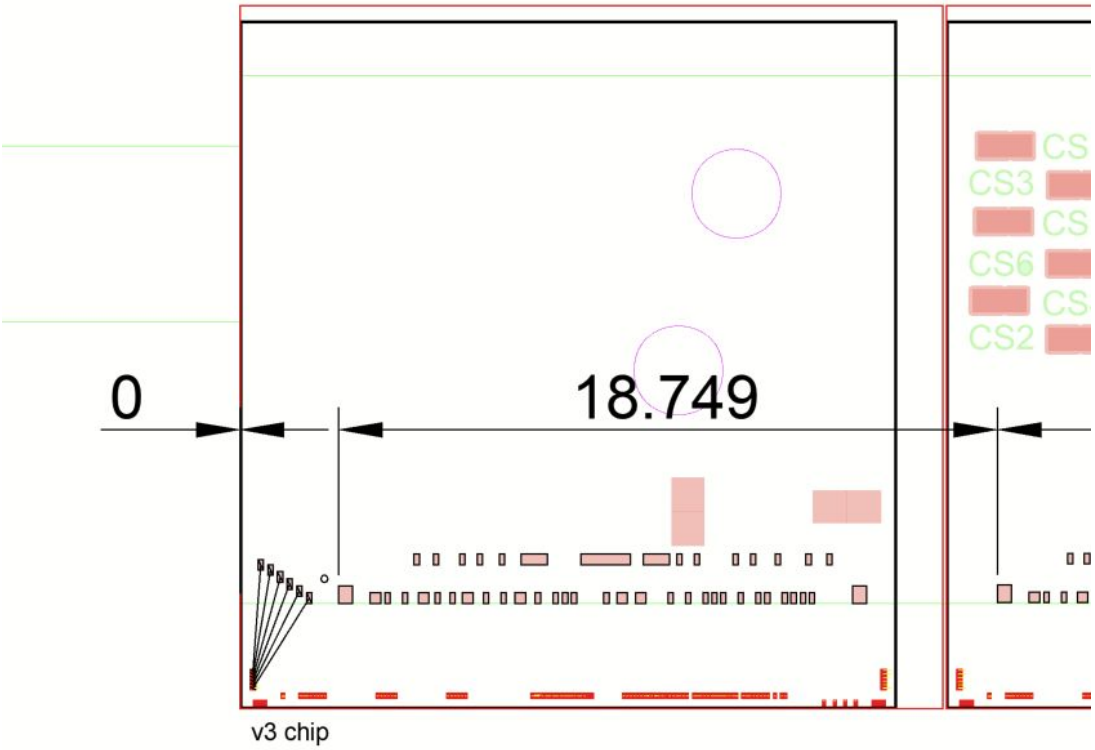
NOT GOOD:
Wires at left edge of hybrid overlap each other

Option 1: Hybrid aligned far left
Chips aligned at bottom edge
Chips centered in pocket



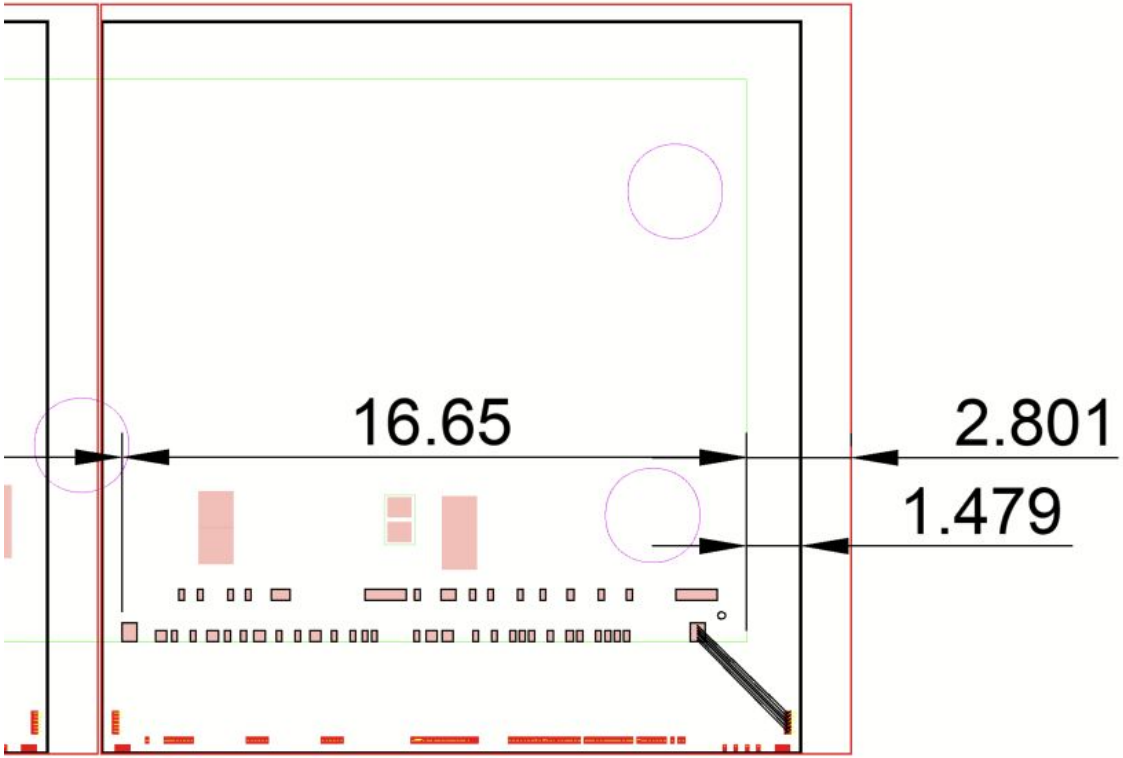
NOT GOOD:
Hybrid not long enough for good alignment with last chip

Option 2: Hybrid aligned far left
Chips aligned at bottom edge
Chips aligned to left edge of pocket



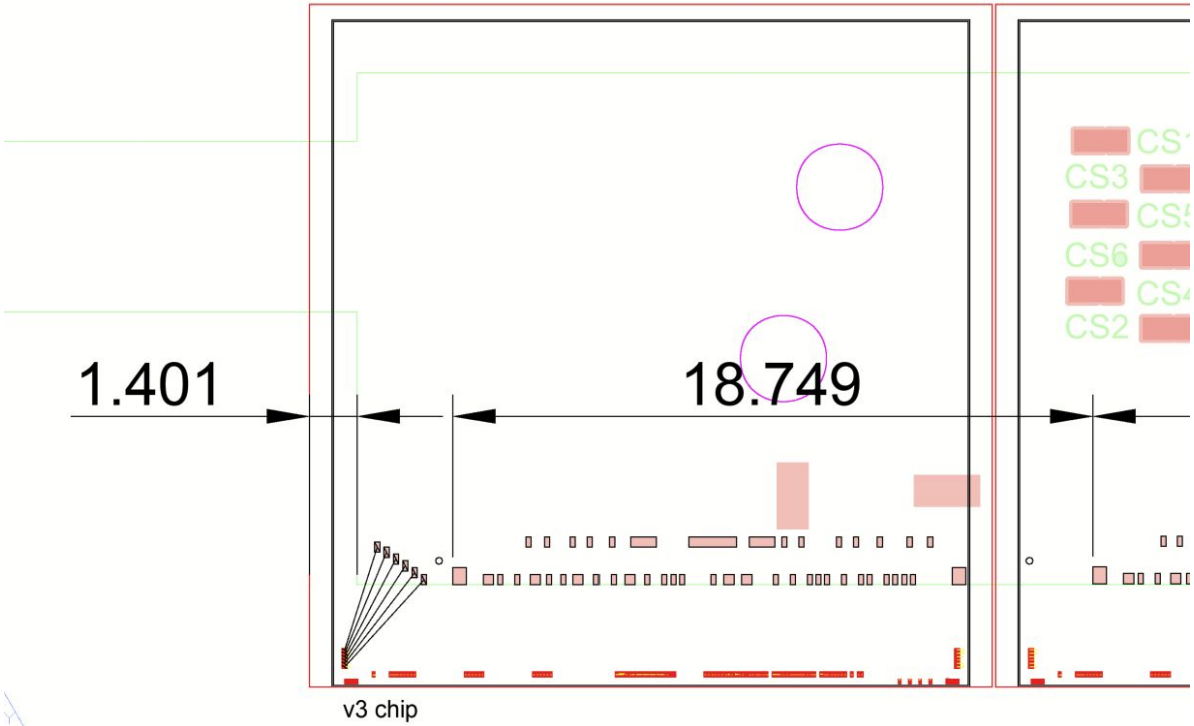
Better Arrangement of Wires at left edge of hybrid

Option 2: Hybrid aligned far left
Chips aligned at bottom edge
Chips aligned to left edge of pocket



Better alignment with last chip, but clash with HV wires???

Option 3: Hybrid centered left-to-right
Chips aligned at bottom edge
Chips centered in pocket



Better Arrangement of Wires at left edge of hybrid

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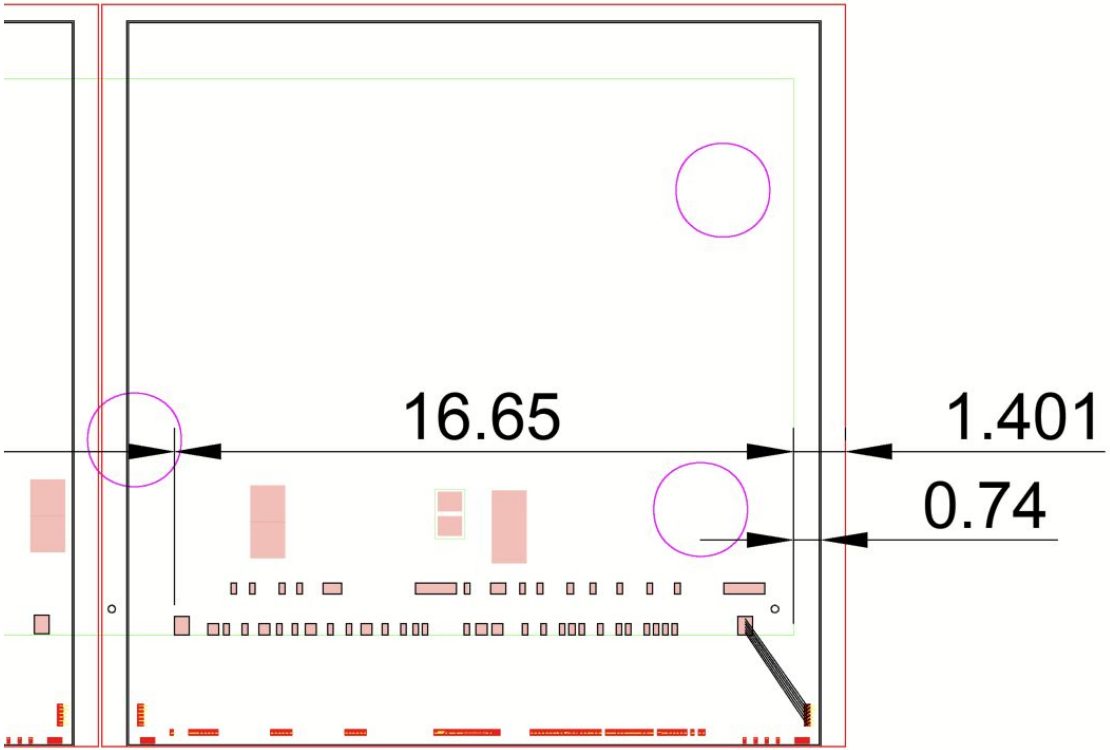

Better Arrangement of Wires at right edge of hybrid

Will there be enough room on the stave for the connector tail bending?

Origin Point

How do we align the chips to the extrusion? Want 30-40um gap to edge of extrusion
And the hybrid to the chips? Option 2 preferred: Left edge of hybrid to left edge of extrusion (or chip area). OSU will send picture of assumed spacing of chips used when laying out hybrid pads.

What gap is allowed between modules on the stave? Ideally, none.