

Calibre Interactive/RVE Integration

- Invoke Calibre from within layout environment
- Needed information is automatically passed to Calibre

The image displays a complex software interface for Calibre Interactive/RVE integration. It features several overlapping windows:

- demo**: A main window with a menu bar (Tools, Library, Cell, Options, Views, Create, Modify, Select, Query, Design Setup, Timing Spec, Power) and a toolbar. It includes a 'Calibre' button and a 'Command History' pane.
- Calibre - DRC RVE : DIGBLK.drc.results**: A window showing a tree view of errors. The 'Cell DIGBLK - 7 Errors' section is expanded, listing checks like 'Check PDIF_OVERLAP_POLY - 3 Errors', 'Check CONTACT_SPACE_TO_POLY - 1 Error', 'Check METAL1_SPACE - 1 Error', and 'Check METAL2_SPACE - 2 Errors'. A 'Checktext' pane at the bottom shows rule details for 'Min Metal 1 space = 0.25'.
- Layout Netlist - lay.net**: A window displaying a SPICE NETLIST with various component definitions and values, such as 'M0 VDD B 2 VDD p L=2.4e-07 W=3.6e-07 \$X=900 \$Y=5090'.
- DIGBLK.CEL;1**: A layout window showing a detailed circuit board layout with a prominent green trace.

- Graphically view Calibre results in Apollo/Astro
- Cross probe between Layout and netlist(s)

Moving Forward

■ Incremental Verification

- Check only what has changed
- Apollo/Astro to track changes that can be accessed by Calibre
- Calibre only checks areas/cells/layers that have changed

■ Auto Repair

- Calibre feeds errors back to Apollo/Astro for automatic repair
 - e.g. Calibre detects antenna and feeds net and location to Astro
- Metal fill insertion
- Automatic DFM optimization

■ Avoidance

- Utilize Calibre detection capability during routing to eliminate most errors at time of routing

Lessons Learned/Limitations

- **Flow integration is more than database integration**
 - For Calibre, tool to tool integration is key
 - Map-in program offers Milkway design data integration ONLY (more efficient/ effective than LEF/DEF or other file transfer solutions)
 - Specific Tool-to-tool integration requires additional relationship with Synopsys, which can/may be difficult to obtain
- **Program still new**
 - API scope was changing during beta period
 - Documentation is still weak
 - Database data-oriented – does not always detail how Snps tools create/use the data
 - Process for getting enhancements is still very rough / not clear

