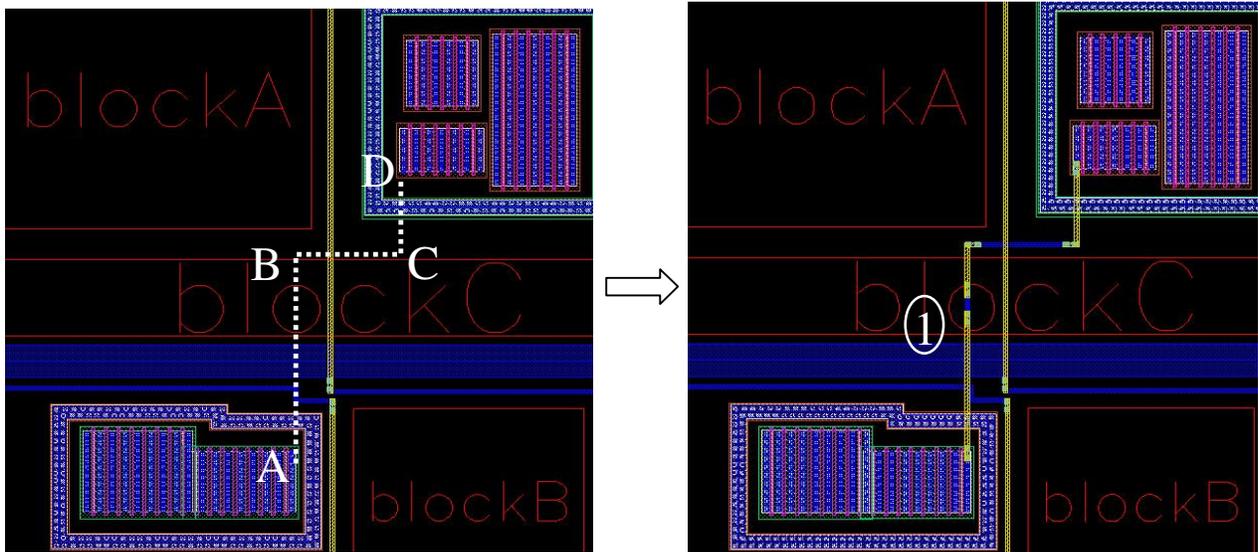


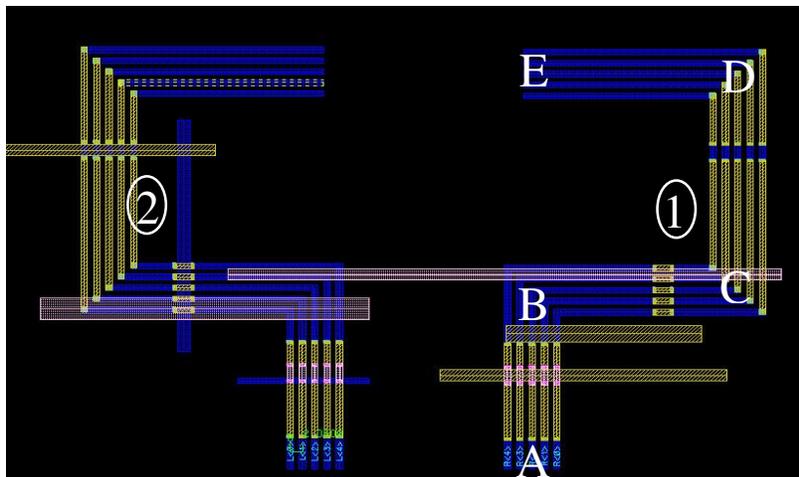
\$ Introduction of SKILLCAD Product

SKILLCAD (www.skillcad.com) is dedicated to developing routing and other automation tools for IC layout design. There are 8 integrated tools in the SKILLCAD product family. These tools are developed to handle multi-category nanometer design rules. SKILLCAD runs as advance add-on modules within CADENCE Virtuoso Layout Environment.

1) StepRouter: A coordinate-to-coordinate grid-less auto-router directly runs on as-is layout window. The router creates an auto-connection along the user-input routing-coordinates in compliance with the routing rules and constrains. The connection can be optimized by layer-direction, resistance, capacitance or RC. Based on what is created, the router can be Path Router, Bus Router, Matched Path Router and Matched Bus Router. (US patent pending)

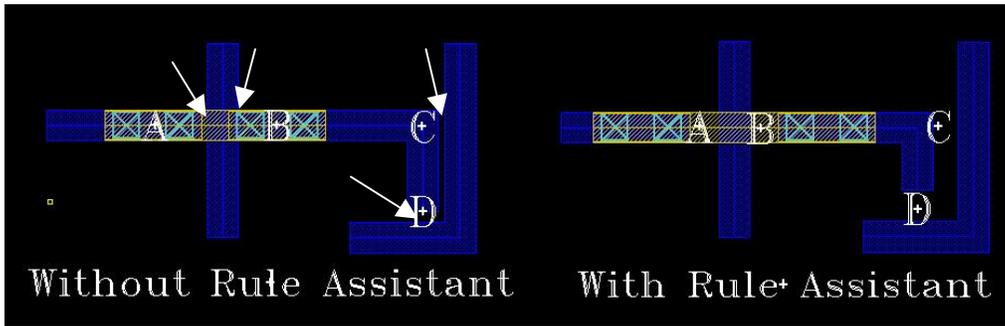


With StepRouter, Connection 1 can be created by clicking A, B, C and D

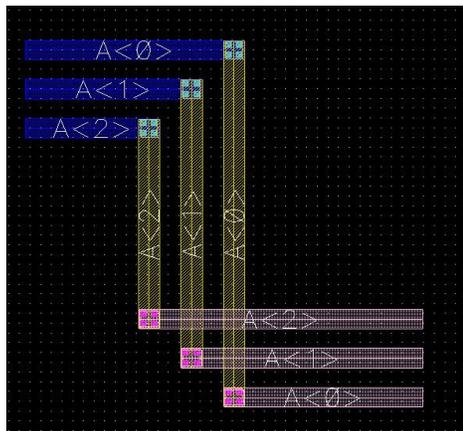


With StepRouter, Matched (identical) Bus 1 and 2 can be created by clicking A, B, C, D and E

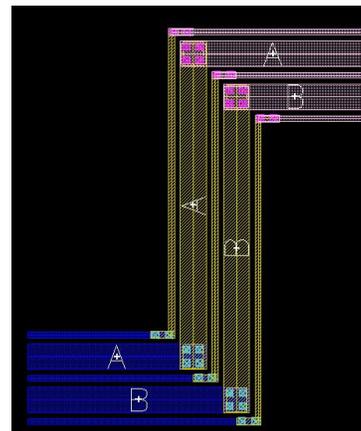
2) FreeJumper: A side-product of step-router which enables the user to jump routing layers between any two metals. The FreeJumper automatically places a proper via (uniVia) on metal jumping. So the user can change routing metals by one click or a bindkey. Minimum area issues on stacking vias, minimum number of vias and other constrains are obeyed. With the “Rule Assistant” feature released in this version, FreeJumper will automatically push the drawing vias and paths to avoid the spacing errors between existing polygons. Based on what is created, the FreeJumper can be a PathJumper or BusJumper or shieldBus Jumper.



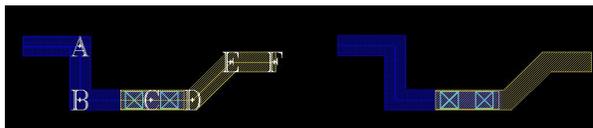
Space violations or shorts at the pointed spot are avoided with Rule Assistant



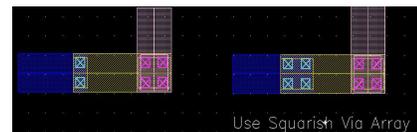
Example of BusJumper



Example of ShieldBus Jumper

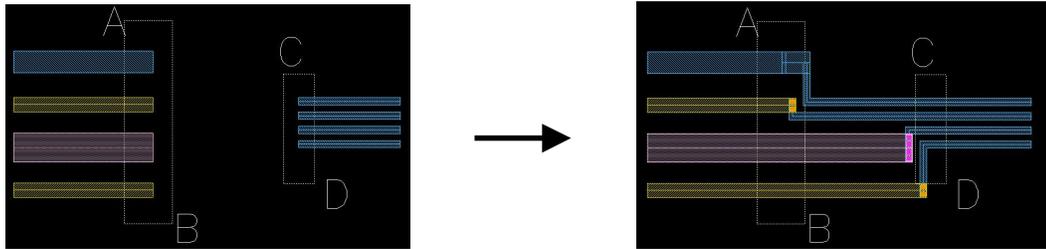
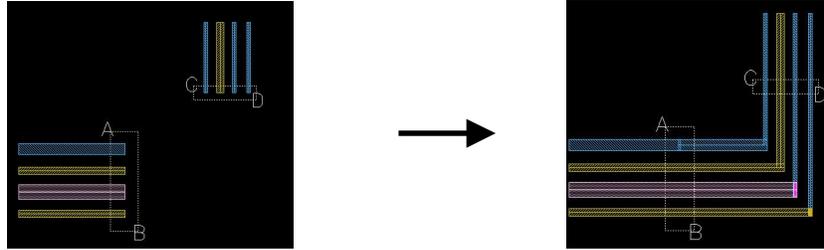


Option to merge with starting path and convert Non-orthogonal paths to polygons on grid



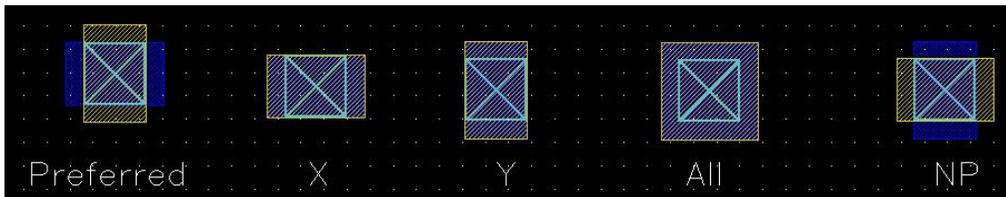
Option to "Use squarish Via Array" to reduce via resistance

3) BusJoint: It is an important supplement module for StepRouter and FreeJumper. StepRouter and FreeJumper require all paths in a bus with same pitch, layer and width. BusJoint connects a bunch of paths with different layer, space or width to another bunch of paths with different layer, space or width. The user can use BusJoint to convert a bunch of different paths to a normal bus first, and then use StepRouter or FreeJumper to continue routing.

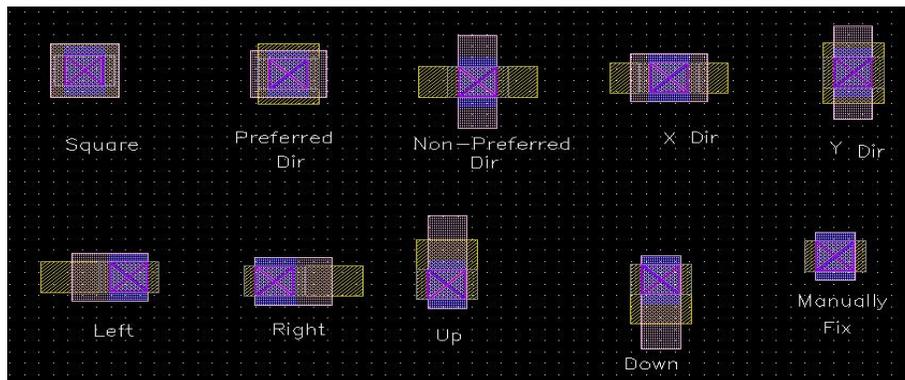


Click A and B to draw the selection box, and then click C and D to draw the other selection box
The selected two bus headers will be joined by BusJoint as showed in the right pictures.

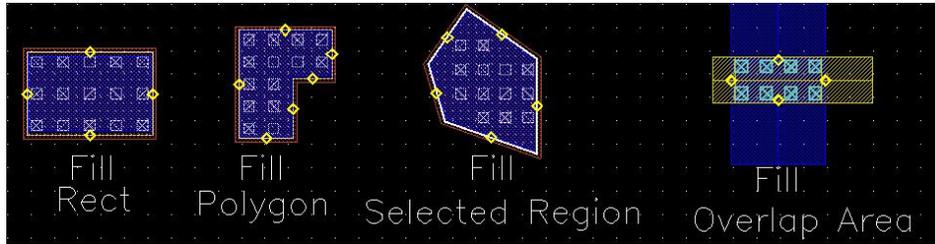
4) UniVia: The user can create Vias/Contacts by cols & rows, filling an area or drawing MPP between any two conductive layers. The design rules such as minimum area on the stack via, array-based via spacing rule, width-depend metal enclosure of via etc rules will be obeyed in uniVia.



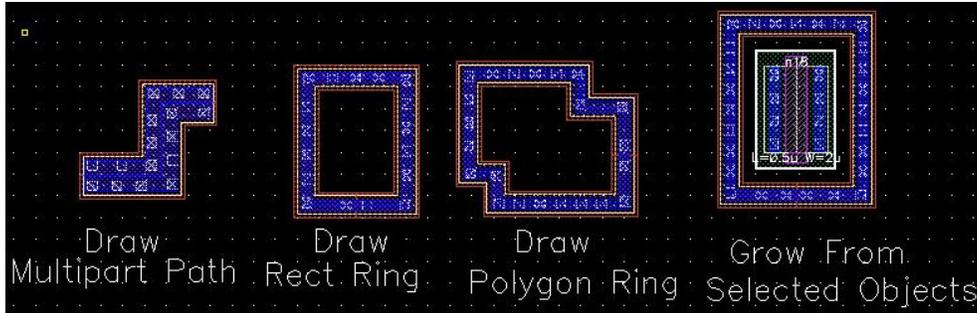
Variations of metal enclosing via



Options to fix Minimum area on stack-vias.

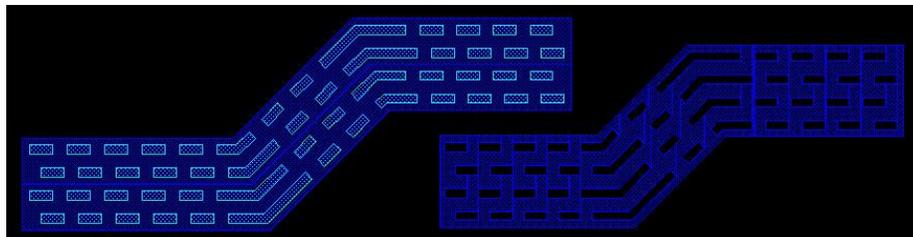


Creating Via by Filling Area.



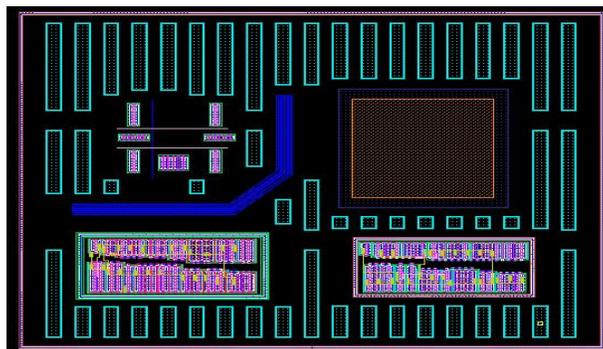
Creating via By MPP

5) **SlotPath**: The user can create slot paths as drawing normal paths. All the slot holes will be snap to grid. Slot Path can be created as a pcell with stretch handlers.



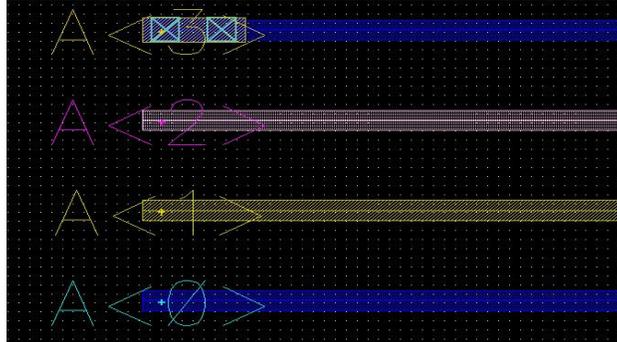
The staggered slot holes can be cut directly on metal or drawn on a slotting purpose layer.

6) **UniFill**: A general process independent tool to fill any kind of user-defined pattern within the specified region to make the coverage within the given range. It handles Keepout layers/regions and is able to iterate filling to meet the coverage (no over fill).



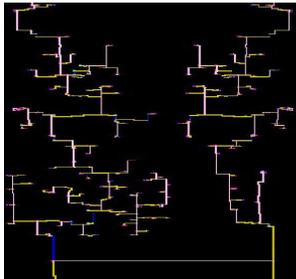
Example of UniFill

7) QuickLabel: Label layer will be automatically set based on which metal layer is under the label origin. Multiple labels can be created in one click. This module includes a Pin/label browser which enables users to locate top/instance level pins/labels quickly and copy pins/labels from instance level to the editing cell view level.

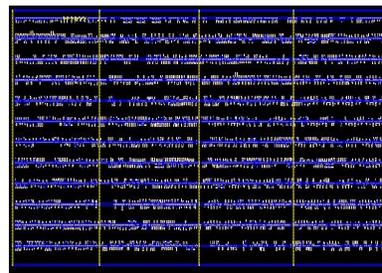


Bus labels created in one click

8) GetNet: A collection of tools for single net-based operations. “**Select Net**” will select all top level metal/vias of a net with one click. “**Extract Net**” will extract the entire net through specified hierarchies to a separate cell view. “**Highlight Net**” will mark the entire net. GetNet module is aware of the connection priority of special metals (such as mimcap) and the relationship of diffusion/poly layers, so that the net will not short through mimcap or source/drain of a MOS device as the normal Mark Net does. With GetNet tools, the user can conveniently do net based analysis such as to detect short and power line distribution, and net based operations such as copy/delete/move/print net.



Extract Net: Clock tree



Extract Net: Power distribution of a digital block.

Visit WWW.SKILLCAD.COM for online demos