## SKILLCAD Index Guide

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- Quick Label(Pin) *: Create Labels/pins
- Rename Pin/Label: Change bus pin/label names [ ] () <>
- Create Inst Label *: Create inst./cell name label on instances
- Create Voltage Label: Create voltage info label on pins
- Mask Label(Letter) *: Create Mask ID Physical labels
- Calculate Area/perimeter *: Hierarchical area/perimeter calculator
- Simple Net R: Calculate resistance for standard bus
- Fix Offgrid *: Fix off grid shapes
- Sky View *: Overall context view for all instances
- Flip Within BBox *: MX/MY/R180 flip within original BBox
- Swap Bit Lines (vias): Swap vias/connections between two lines
- Toggle Via CutClass: Change (cycle) Via CutClass(size)
- Full Selection: Partial ->full, Full bus selection
- Select Net Obj: Select objects by layer and net names
- **nCopy**: copy selected objects “n” times
- Manhattan Edge: Convert all edges(ellipse shapes) to Manhattan Shapes
- Create Spiral: Create Spiral Shapes(inductor)
- Formula Plotter: Creating shapes defined by equations
- Fill Holes: Fill holes with certain area/width
- Layer Generation: Create layers from objects, using Boolean functions
- Cut Out Short *: Cut holes to remove short on a big piece(Power) metal
- Cover Fig/Net: Cover shapes or entire net with specify lpp (or color pattern)
- Grow Shapes: Grow shapes from a reference obj
- Edge Grow: Create wires from selected edges of a shape
- Line Distance *: Measure distances between two lines/edges
- Sync Window View *: Zoom to the same layout location of two synchronized windows
- Sync Schematic View *: Zoom to the same schematic location of two synchronized windows
- Replace Part of Layer: Copy/Move shapes from the background view
- XOR Background View *: XOR a background view with the current view, displaying differences between the two
- Chop Array: Chop Mosaic cells
- Inductor Pin Checker: Check pins on each net (for inductor layout)
- Create Arc Shapes: Create curved shapes (high voltage application)
- Convert Shapes: Convert shapes between path/polygon/wire
### MultiColor Functions (Temporarily Covered by SKILLCAD Base license)

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### NanoWire

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### rSolver

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### TwistedBus

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<td>Set up metal layer parameters. These are used in capacitance calculations.</td>
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<td>Set up special metals, such as MIM cap.</td>
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<td>Set up the layers for metal and pin labels.</td>
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<td>Set up base layers, such as poly and diffusion.</td>
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<td>Set up metal equivalent layers. This is used in the GetNet functions.</td>
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<td>Set up general metal rules, such as coupling capacitances, minimum default number of vias, etc.</td>
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<td>Set up metal rules, such as widths and spacings, and resistances.</td>
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<td>Set up contact and via rules, and metal enclosure of vias rules. Also set up contact and via resistances. These are used in the rSolver and other resistance calculations.</td>
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SKILLCAD Plus, Create Twisted Bus

SKILLCAD Create Twisted Bus

- Rule: Default | recommended
- X_Dir Met.: METAL1
- Y_Dir Met.: METAL1
- Cross Met.: METAL2
- Bit Width(um): 1
- Bit Space(um): 3
- No Of Pairs: 1
- Pair Space(um): 5
- Draw Shield: 1
- Width(um): 1
- Space(um): 5
- No. Of Swaps: 4
- Cross Type: 45 Degree
- Min. Via Number: 2
- Cross At Orth. Corner
- Twisted At 45 Degree
- Use Square Via
SKILLCAD Create Via

Create Instance

Library: graphic
Cell: zz_Scratch_Via_jamie
View: layout
Names: 11

- Halo
- Define Halo...
- Physical Only

Mosaic: Create as mosaic

Parameters

My Variant:
Use Rule:
Enc Via Mode:
From Layer: METAL1 drawing
To Layer: MT_SUB
Specify Array of:
Cols: 1
Rows: 1
Stacked Via Space:
End Enclosure on Side:
Minimum Area Fix Mode: Square

Hide Cancel Defaults Help
SKILLCAD Edit Standard Via

- Action: Stretch Array
- Use Rule: Default
- Enc Mode: viaDef
- Via Space: Distribute
- Keep cutClass (via Size): On
- Keep Via Center: Off
- On Selected Vias: Off

Flags:
- Hide
- Cancel
- Save As Default
- Help
SKILLCAD Edit Standard Via, Stretch Enclosure

SKILLCAD Edit Standard Via

Action:  ○ Stretch Array  ● Stretch Enclosure  ○ Set Params/Variants  ○ cutPattern

Enc Mode:  ○ viaDef  ● minRule

On Layer:  ● Both  ○ Layer1  ○ Layer2  ○ Align

Symmetrical Enclosure  ●  On Selected Vias  □
SKILLCAD Edit Standard Via, Set Params/Variants
SKILLCAD Edit Standard Via, Cut Patterns
SKILLCAD Fill Via

- Fill all from and to layers, in a rectangular area.
- Fill metal overlaps, by clicking on overlap.
- Fill vias in a selected region.
- Fill metal overlaps, by clicking on overlap; auto detect from and to layers.
- Fill metal overlaps, on same VXL net, within a rectangular region.
- Draw a polygonal via array.
- Draw a rectangular via array.
SKILLCAD Create Multi-Part Path (MPP)

Creating an MPP.

Creating a ring around existing shapes, instances.

Changing selected MPPs.

Creating a ring, guard ring.

Reshaping an MPP/ring.
SKILLCAD Creating a Metal Bus, (3 Ways)
SKILLCAD Creating a Metal Path/Path Segment, (3 Ways)
SKILLCAD Continuing a Metal Path/Path Segment
SKILLCAD SegJumper, Various Functions

- Distributing bus metals.
- Alternating bus metal layers.
- Staggering in-line vias.
- Reversing bus routing order at via corners.
- Fan out/in of bus routes.
- Alternating via directions at bus via corners.

![SKILLCAD SegJumper Interface](image)

- Rule: Default or recommended
- No of Bits: 16
- Widths(um): 0.26
- Spaces(um): 0.23
- Jump To Routing Layer (Odd Bit): METAL2
  - Evn./Odd: Same
  - MultiLayer: 1
  - Interval: 1
- Min. Via Number: 2
- Reverse Order
- Stagger Via(um): 0
- Diagonal Fanout
- Fix Min. Acco: Auto
- Use Squarish Via
- Alternate Vias
- Enc Mode: viaDef
- Rule Assistant: Use My Min. Space Rule: 0
Creating labels along the path.

Convert a non-orthogonal path to a polygon, on grid.

Align the starting and ending path to the center of the existing metal.

Snap path/path segment to the center, between two existing shapes.
Creating a path/path segment that automatically vias over/under existing metal layers.

Creating a path/path segment that automatically optimizes for layer direction, R, C, and RC.

Add labels along path/path segment.

Aligning the starting/ending points of the path/path segment to the center of existing metals.
Creating matched paths/path segments.
Creating a bus that automatically vias over/under existing metal layers.

Creating a bus that automatically optimizes for layer direction, R, C, and RC.

Add labels along the bus routes.

Aligning the starting/ending points of the bus to the center of existing metals.
Creating matched bus routes.
Creating dummy fill.

Creating dummy fill, using a fill cell.

Creating dummy fill run sets.

Creating dummy fill in a defined area.

Creating dummy fill under a specified layer.

Creating dummy fill in a selected region.

SKILLCAD Advanced Fill

SKILLCAD UniFill Form

- Template:
- Fill Dummy shape of Layer:
- For the Coverage of Layer:
- Ignore Coverage:
- Filling Pattern Defined By:
- With Fixed:
- Keepout Layer/Area:

Run Sets:

- Fill Region:
- Cell Boundary Box
- Under Layer:
- Selected Regions
- Area to Calculate Coverage: Grow Fill-Region by
- Use Tile Mode: Square Tile Size(um):

- Excluding Layer Purposes:
- Create Exclusion on Layer Purpose:
- Save to Lib:
- Create Matched Fill

OK Cancel Defaults Apply Help
Creating matched fill.
### SKILLCAD Simple Fill

#### SKILLCAD Fill Area

<table>
<thead>
<tr>
<th>Template:</th>
<th>Save As Cell</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-set Layer Purpose:</td>
<td>drawing</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fill Layers</th>
<th>Width(um)</th>
<th>Height</th>
<th>SpaceX</th>
<th>SpaceY</th>
<th>Distribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONT drawing</td>
<td>0.22</td>
<td>0.22</td>
<td>0.25</td>
<td>0.25</td>
<td></td>
</tr>
<tr>
<td>VIA12 drawing</td>
<td>0.26</td>
<td>0.26</td>
<td>0.26</td>
<td>0.26</td>
<td></td>
</tr>
<tr>
<td>VIA23 drawing</td>
<td>0.26</td>
<td>0.26</td>
<td>0.26</td>
<td>0.26</td>
<td></td>
</tr>
<tr>
<td>VIA34 drawing</td>
<td>0.26</td>
<td>0.26</td>
<td>0.26</td>
<td>0.26</td>
<td></td>
</tr>
<tr>
<td>VIA45 drawing</td>
<td>0.26</td>
<td>0.26</td>
<td>0.26</td>
<td>0.26</td>
<td></td>
</tr>
<tr>
<td>VIA56 drawing</td>
<td>0.36</td>
<td>0.36</td>
<td>0.35</td>
<td>0.35</td>
<td></td>
</tr>
<tr>
<td>DIFF drawing</td>
<td>1</td>
<td>1</td>
<td>0.6</td>
<td>0.6</td>
<td></td>
</tr>
<tr>
<td>POLY1 drawing</td>
<td>0.18</td>
<td>0.18</td>
<td>0.25</td>
<td>0.25</td>
<td></td>
</tr>
<tr>
<td>METAL1 drawing</td>
<td>0.22</td>
<td>0.22</td>
<td>0.23</td>
<td>0.23</td>
<td></td>
</tr>
<tr>
<td>METAL2 drawing</td>
<td>0.22</td>
<td>0.22</td>
<td>0.23</td>
<td>0.23</td>
<td></td>
</tr>
<tr>
<td>METAL3 drawing</td>
<td>0.28</td>
<td>0.28</td>
<td>0.28</td>
<td>0.28</td>
<td></td>
</tr>
<tr>
<td>METAL4 drawing</td>
<td>0.28</td>
<td>0.28</td>
<td>0.28</td>
<td>0.28</td>
<td></td>
</tr>
<tr>
<td>METAL5 drawing</td>
<td>0.28</td>
<td>0.28</td>
<td>0.28</td>
<td>0.28</td>
<td></td>
</tr>
<tr>
<td>METAL6 drawing</td>
<td>0.28</td>
<td>0.28</td>
<td>0.28</td>
<td>0.28</td>
<td></td>
</tr>
</tbody>
</table>

- Fill in Selected Objects
- Fill in a Rect Region
- Fill in a Polygon Region

---

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SKILLCAD Index Guide 26
SKILLCAD Layer Density Check

Density checking in a polygonal region.

Density checking in a rectangular region.

Density checking in a selected region.

Density checking in a region defined by coordinates.
SKILLCAD rSolver
SKILLCAD Pattern Placer

Set Up...
Preferences...
Show SKILLCAD Icons
SKILLCAD Plus
MultiColor Functions
uniVia
Stretch Via...
SegJumper...
SegEditor...
Free Jumper
ShieldBus
Bus Join...
vEditor
rSolver...
Place
Step Router
Track Functions
Layer Handler
Get Net
Pin Functions
Label Functions
Slot Path
Fill Dummy
Kits
xView
Check in License
About...

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SKILLCAD Index Guide 29
SKILLCAD Quick Label

Re-Create labels for selected pins.

SKILLCAD Label Functions:
- Quick Label(Pin)
- Rename Pin/Label
- Create Text Label
- Create Voltage Label
- Mask Label(Letter)

Pick netNames from Schematic
- view2
- schematic

Options:
- Pins Only
- Exclude Defaults
- Expand all busNames
- Interleaf Bus Labels
- No. of labels for a group
- Label ox: 0
- Label dy: 0
- Group ox: 0
- Group dy: 0
- Use VIL Net Name

Input Labels:

Snap To Boundary:
- Auto
- Left
- Right
- Top
- Btm

Settings:
- Font
- Orientation
- Layer
- Alignment

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SKILLCAD Rename Pin/Label

Change: [ ]  To: <>

OK  Cancel  Defaults  Apply  Help

SKILLCAD Label Functions
Quick Label (Pin)
 Rename Pin/Label
 Create Inst Label
 Create Voltage Label
 Mask Label Letter

Close  Help
SKILLCAD Create Instance Labels

The SKILLCAD Create Instance Label dialog box allows you to specify various properties for creating instance labels. Key settings include:

- **Height**: Determines the vertical size of the label.
- **Orientation**: Sets the angle of the label.
- **Font**: Specifies the typeface for the label.
- **Label Layer**: Chooses the layer on which the label will be placed.
- **Label Name**: Options include Auto, InstName, CellName, or None.
- **Ignore Prefix**: Toggles whether to ignore a prefix when creating the label.

Example settings shown include:
- **Height**: -1
- **Orientation**: 0
- **Font**: stick
- **Label Layer**: TEXT drawing
- **Label Name**: Auto
- **Ignore Prefix**: checked

This dialog box is part of the SKILLCAD Label Functions menu, which includes options for quick label editing, renaming, and creating various types of labels. The example text at the bottom of the page reads: "8/26/20 SKILLCAD Index Guide 32".
SKILLCAD Create Mask Labels

SKILLCAD MaskLabel Form

- Label Name
- From: To: Step
- Suffix
- Label Pitch X: 20
- Pitch Y: 0
- Font Space: 1
- Font Size: 8
- Line Thickness: 1
- Font Style: Angle
- Orthogonal
- Rotation: 0, 90, 180, 270
- Save As Cellview:

SKILLCAD Label Functions
- Quick Label(Pin)
- Rename Pin/Label
- Create Inst Label
- Create Voltage Label
- Mask Label(Letter)

Hide  Cancel  Defaults  Help

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SKILLCAD Layer Handler

Get/view layers within a rectangular region.

Get/view layers under selected objects.

Get/view layers under cell view.

Get/view layers under a point, defined by the cursor.

Create and edit layer lists.
SKILLCAD Select Net, Clear Net Highlight

- Select a net.
- Clear net highlights.
SKILLCAD Extracting a Net

SKILLCAD Extract Net

- Use Tool:  
  - Skill
  - Assura
  - Diva

- Extract Layers From:  
  - METAL6

- To:  
  - METAL1

- Multi Nets:  
  - [ ]

- Save To View:  
  - [ ] Assign netName

- Down To Level:  
  - [ ] 32

- Ignore

- Cell View Lib:

- Find Narrow Connections

- Width(um) <= 0

- Via No. < 1

- [ ] Exclude Narrow Metal Ends

- *** To Browse Narrow Spots:
  - Use Pulldown Menu: Verify->Markers->Find...

- [ ] Report Layer Info of the Extracted Net.

- [ ] Extract Neighboring Figures within(um):  0

- Hide

- Cancel

- Save As Default

- Help
SKILLCAD Highlighting a Net

SKILLCAD Hilite Net

Use Tool: 
- Skill
- Assura
- Diva

Extract Layers From: METAL6 To: METAL1

Down to Hierarchy Level: 32

Highlight Net Using Display: cycle

Multi Nets: 

Clear All Highlight

Do Highlight

Ignore Cell View Lib: 

Add

Del

Hide

Cancel

Help

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SKILLCAD Index Guide 
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Set the pin label orientation.

Re-create labels for selected pins.
SKILLCAD Promote Pins

SKILLCAD Pin Functions
- Pin Places/Browser
- Quick Label Pin
- Promote Pins
- Create Pin From Label
- Create Pin From Coord
- Expand Pin To Shape
- Align/Distribute Pins
- Change Pin Size/Layer
- Rename Pin/Label
- Cover Pins By Metal Drawing

Connected to Top I/Os

Pick Pins By:
- Inst Terminal Name
- Top Level Net Name

Refresh From Selected Insts
On Layer: Any Metal

Name Pins:

Add
Del
Align
Clear

Cover Whole Shape

OK Cancel Default Apply Help
SKILLCAD Create Pin From Label

SKILLCAD Pin Functions
- Pin Piece/Browser
- Promote Pins
- Create Pin From Label
- Create Pin From Coord
- Expand Pin To Shape
- Align/Distribute Pins
- Change Pin Size/Layer
- Rename Pin/Label
- Cover Pins By Metal Drawing

SKILLCAD Create Pin From Label
- Pin Width: Auto
- Height: Auto
- Convert Label To Text Display
- Keep Label Origin
- Attach To Pin
- Create Pins For All (Selected) Labels

Close  Help
SKILLCAD Create Pin From Coordinates
SKILLCAD Expand Pin To Shape
SKILLCAD Align/Distribute Pins

- Sort pins by net name.
- Align pins to prBoundary.
- Align pins to shape edge.
- Distribute pins within a range.

SKILLCAD Pin Functions
- Pin Piece/Annotation
- Quick Label/Pin
- Promote Pins
- Create Pin From Label
- Create Pin From Coord
- Expand Pin To Shape
- Align/Distribute Pins
- Change Pin Size/Layer
- Rename Pin/Label
- Cover Pins By Metal Drawing

SKILLCAD Move/Align Pins
- Expand Selection To All Bits of Bus
- Deselect Pins(Fig):
  - Odd
  - Even
- Sort By Net Name
- Reverse Order
- Change To Layer:
  - METAL1 pin
- Align Selected:
- Move By: 0.005
- Snap To:
  - prBoundary
  - Shape Edge
- Adjust:
  - Pin Label
  - Pin Size
- Set Space:
- Distribute In:
  - Current Range
  - New Range

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SKILLCAD Change Pin Size/Layer

SKILLCAD Pin Functions
- Pin Places Browser
- Quick Label (Pin)
- Promote Pins
- Create Pin From Label
- Create Pin From Coord
- Expand Pin To Shape
- Align/Distribute Pins
- Change Pin Size/Layer
- Rename Pin/Label
- Cover Pins By Metal Drawing

SKILLCAD Change Pin Layer/Size
- New Layer: METAL2 pin
- W(um): Auto, H: Auto
- Do Not Move: Center

OK, Cancel, Defaults, Apply, Help
SKILLCAD Rename Pin/Label

SKILLCAD Pin Functions
- Pin Packer/Browser
- Pin Packer Browser
- Quick Label(Pin)
- Promote Pins
- Create Pin From Label
- Create Pin From Coord
- Expand Pin To Shape
- Align/Distribute Pins
- Change Pin Size/Layer
- Rename Pin/Label
- Cover Pins By Metal Drawing

SKILLCAD Rename Pin/Label

Change: [ ] To: <>

OK Cancel Defaults Apply Help
SKILLCAD Cover Pins With Drawing Purpose

SKILLCAD Pin Functions
- Pin Places/Browser
- Quick Label(Pin)
- Promote Pins
- Create Pin From Label
- Create Pin From Coord
- Expand Pin To Shape
- Align/Distribute Pins
- Change Pin Size/Layer
- Rename Pin/Label
- Cover Pins By Metal Drawing

Cover Pins With Drawing Purpose

- Cover Selected(All) pins By [Layer] Purpose: drawing
- Ignore Shapes At Lower Level
- Size By: 0
- Cover By Wire/PathSeg

[OK] [Cancel] [Defaults] [Apply] [Help]
SKILLCAD Creating A Slotted Path

Change the default slot path rules.
SKILLCAD Convert A Path To A Slotted Shape

Change the default slot path rules.
SKILLCAD Copy Slot Holes

SKILLCAD Copy Slot Holes

Create Slot Holes on Layer: METAL2
From Slot Holes on Layer: METAL1
X_Offset(um): 0 Y_Offset(um): 0
Min. Metal Enc. Slot Holes(um): 1

Close Help

Back Video PowerPoint Doc PDF Doc
SKILLCAD Creating A Metal Mesh

SKILLCAD SlotPath
- Draw Slot Path
- Convert To Slot Path
- Copy Slot Holes
- Create Mesh

SKILLCAD MESHBUS
- No. Of Holes: 1
- Width(A): 1.0MM
- Height(B): 1.0MM
- Total Width(Cx): 3.0MM
- Via Type: Array
- Routing Layer: METAL.1

Hole to:
- Hole Spacing(Dx): 1.0MM
- Hole Vertical Spacing(E): 1.0MM
- Left Edge Spacing(Fx): 1.0MM
- Right Edge Spacing(G): 1.0MM
- Begin Edge Spacing(H): 1.0MM

Direction

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SKILLCAD V-Editor, Bus Adjust

V-Editor
- busAdjust
- busGrow
- VStretch
- vMove
- busTap
- Bus Connect
- Bridge
- Distribute Bus
- Align BusEnd
- Bus Continue
- Break Bus
- changeLayer
- Detour
- Dent Corner
- Via Chain
- Gate Cont
- combRouter
- Fix MinArea
- Taper Connect
- Round Corner
- River Router
- Trim BusConnect
- SameL Connect

Bus Adjust
- Use Rule: Default, recommended
- Edit: Bus, Segment, Layer
- Pick Net: On Entry Layer, Options...
- Use Spacing Rule Table in Techfile
- Do not Move: First Center
- Width Mode: Width, Current
- Space Mode: Space, Pitch
- Edit Individual:

New Width(um): As Original
New Space(um): As Original

Hide, Cancel, Save As Default, Help
SKILLCAD V-Editor, Bus Grow

V-Editor
- busAdjust
- busGrow
- vStretch
- vMove
- busTap
- Bus Connect
- Bridge
- Distribute Bus
- Align BusEnd
- Bus Continue
- Break Bus
- changeLayer
- Detour
- Dent Corner
- Via Chain
- Gate Cont
- combRouter
- Fix MiniArea
- Taper Connect
- Round Corner
- River Router
- Trim BusConnect
- SameL Connect

BusGrow
- Use Rule: Default
- Copy: Bus, Segment
- Pick Net On Entry Layer
- New Width (um): As Original
- New Space: As Original
- No. Of New Bits: 1
- To The Side of: Front
- New Bit Names (back to front): 
- Use Spacing Rule Table in Techfile

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SKILLCAD V-Editor, V-Stretch
SKILLCAD V-Editor, V-Move
SKILLCAD V-Editor, Bus Tap

V-Editor
- busAdjust
- busGrow
- VStretch
- vMove
- busTap
- Bus Connect
- Bridge
- Distribute Bus
- Align BusEnd
- Bus Continue
- Break Bus
- changeLayer
- Detour
- Dent Corner
- Via Chain
- Gate Cont
- combRouter
- Fix MiniArea
- Taper Connect
- Round Corner
- River Router
- Trim BusConnect
- SameL Connect

SKILLCAD busTap
- Use Rule: Default recommended
- Out With Layer: Upper Metal
- Out to: Front Back Both
- Reverse Order
- Tap On The Left Side of Selection Line
- Pick Paths: All Odd Even Down To Level
- Spacing: As Original
- Width: As Original
- Offset: 0

Close Help

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SKILLCAD V-Editor, Bus Connect
SKILLCAD V-Editor, Bus Bridge

Bus Bridge

- Use Rule: Default or recommended
- Bridge Layer: METAL1 or drv
- On Wires: All, Odd, Even
- Via Align: Center or Edge
- Pick Net On Entry Layer: Unchecked

Options...
Evenly distributing bus metals ( spacings) in a given area
SKILLCAD V-Editor, Align Bus End
SKILLCAD V-Editor, Bus Continue

- BusAdjust
- busGrow
- VStretch
- vMove
- busTop
- Bus Connect
- Bridge
- Distribute Bus
- Align BusEnd
- Bus Continue
- Break Bus
- changeLayer
- Detour
- Dent Corner
- Via Chain
- Gate Cont
- combRouter
- Fix MinArea
- Taper Connect
- Round Corner
- River Router
- Trim BusConnect
- SameL Connect

Bus Continue
Down to Hierarchy Level: 32

Options: Hide, Cancel, Help
SKILLCAD V-Editor, Break Bus

V-Editor

- busAdjust
- busGrow
- vStretch
- vMove
- busTap
- Bus Connect
- Bridge
- Distribute Bus
- Align BusEnd
- Bus Continue
- **Break Bus**
- changeLayer
- Detour
- Dent Corner
- Via Chain
- Gate Cont
- combRouter
- Fix MiniArea
- Taper Connect
- Round Corner
- River Router
- Trim BusConnect
- SameL Connect

BusBreak

- Use Rule: [Default] [recommended]
- Path End Space(um): [ ]
- Pick Net On Entry Layer: [ ]

[Hide] [Cancel] [Help]
SKILLCAD V-Editor, Change Bus Layer

- **busAdjust**
- **busGrow**
- **vStretch**
- **vMove**
- **busTap**
- **Bus Connect**
- **Bridge**
- **Distribute Bus**
- **Align BusEnd**
- **Bus Continue**
- **Break Bus**
- **changeLayer**
- **Detour**
- **Dent Corner**
- **Via Chain**
- **Gate Cont**
- **combRouter**
- **Fix MiniArea**
- **Taper Connect**
- **Round Corner**
- **River Router**
- **Trim BusConnect**
- **SameL Connect**

**Change Bus Layer**

- **Use Rule:** Default, recommended
- **Change To Layer:**  /  
- **Pick Net On Entry Layer**

**Options...**
SKILLCAD V-Editor, Bus Detour

Bus Detour

- Around Object
- Spacetum:
- Pick Net On Entry Layer
- Turn Mode:
- On Side:

Detour

- busAdjust
- busGrow
- vStretch
- vMove
- busTop
- Bus Connect
- Bridge
- Distribute Bus
- Align BusEnd
- Bus Continue
- Break Bus
- changeLayer

V-Editor
SKILLCAD V-Editor, Dent Corner

Dent Corner

Convert non-orth Path to polygon on Grid
Pick Net On Entry Layer

Close  Help
SKILLCAD V-Editor, Via Chain

V-Editor
- busAdjust
- busGrow
- vStretch
- vMove
- busTap
- Bus Connect
- Bridge
- Distribute Bus
- Align BusEnd
- Bus Continue
- Break Bus
- changeLayer
- Detour
- Dent Corner
- Via Chain
- Gate Cont
- combRouter
- Fix MiniArea
- Taper Connect
- Round Corner
- River Router
- Trim BusConnect
- SameL Connect

SKILLCAD ViaChain

Use Rule:
- Default
- recommended

Chain Layer:
- METAL2
- Draw Chain

Offset(um):
- Width

Connect To Pins (Shapes):
- On Metal Layer:
- METAL1
- On Net Name:
- Down to Hierarchy Level:
- 32
- Valid Filter:
- All
- Even
- Odd

Pin Via:
- Cols:
- Rows:
- Cover Pins:
- Via Range:
- Met Overlap
- Whole
- At Line
- Half1
- Above Line
- Half2
- Below Line
- Via Enc Mode:
- viaDef
- minRule
- Create Group

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SKILLCAD Index Guide
SKILLCAD V-Editor, Comb Router

V-Editor
- busAdjust
- busGrow
- vStretch
- vMove
- busTap
- Bus Connect
- Bridge
- Distribute Bus
- Align BusEnd
- Bus Continue
- Break Bus
- changeLayer
- Detour
- Dent Corner
- Via Chain
- Gate Cont
- combRouter
- Fix MinArea
- Taper Connect
- Round Corner
- River Router
- Trim BusConnect
- SameL Connect

SKILLCAD CombRouter

Use Rule: Default or recommended
Set Teeth: Connect To Pins (Shapes):
Layer: As Pin
Width: 50
MultiLayers: 1
Interval: 1
Ridge Via:
Cols: -1
Rows: -1
Offset: 0
Via Enc Mode: viaDef
Create Group

Pin Via:
Cols: -1
Rows: -1
via Range: Whole
Cover Pins

Hide | Cancel | Apply | Help
SKILLCAD V-Editor, Fix Minimum Area

V-Editor
- busAdjust
- busGrow
- vStretch
- vMove
- busTap
- Bus Connect
- Bridge
- Distribute Bus
- Align BusEnd
- Bus Continue
- Break Bus
- changeLayer
- Detour
- Dent Corner
- Via Chain
- Gate Cont
- combRouter
- Fix MinArea
- Taper Connect
- Round Corner
- River Router
- Trim BusConnect
- SameL Connect

SKILLCAD Fix Pin/Rect MinArea

- Min Area: [-1]
- Fix Mode: [XDir] [YDir] [Left] [Right] [Up] [Down]
- Find Shapes Down To Level: [32]
- Valid Shapes Filter: [All] [Even] [Odd]
Connecting two buses with any angle metal.
SKILLCAD V-Editor, Round Corner

- busWidth
- busGrow
- vStretch
- vMove
- busTaper
- Bus Connect
- Bridge
- Distribute Bus
- Align BusEnd
- Bus Continue
- Break Bus
- changeLayer
- Detour
- Dent Corner
- Via Chain
- Gate Cont
- combRouter
- Fix MinArea
- Taper Connect
- **Round Corner**
- River Router
- Trim BusConnect
- SameL Connect

SKILLCAD Round Corner

- Corner Type: [Same Space], [Same Corner], [Same Delta]
- Radius: [input field]
- Pts: [-1]

Buttons: Hide, Cancel, Help
SKILLCAD V-Editor, River Router
Adding connections and trimming the metal tails, between two intersecting buses.
SKILLCAD V-Editor, Equal Length Connector
SKILLCAD Create A Shielded Bus

![Shielded Bus Functions](image)

**ShieldBus Functions**
- Shield Bus Jumper
- Via Wall Shield

**SKILLCAD FreeJumper (ShieldBus)**

- **Use Rule:** Default
- **Path Width Mode:** Min Width
- **Signal Path Width(μm):** 0.23
- **Current(mA):** 0.22
- **Number:** 2
- **Spacing(μm):** 0.23
- **Shielding Path Width(μm):** 0.22
- **To Signal Space:** 0.23
- **Shielding:** Left: ✔ Right: ✔ Top: ✔ Bottom: ✔ Middle: ✔

- **Current Entry Layer:** METAL1
- **Next Click Jump To:** METAL1
- **Min. Via Number:** 2
- **Max. Stack Levels:** 6
- **Fix Min. Area:** Auto
- **Corner Via Align:**
- **Metal Eric Mode:**
- **Create Note Labels Along Path:**
- **Alert if Non-Preferred Dir Routing:** 5
- **Reverse Bus Order at Corner Layer Jumping:**
- **Convert Non-orthogonal Path to Polygon on Grid:**
- **Extend Path at Layer Jumping:**
- **Merge with Starting/Ending Path:**
- **Align Starting/Ending to Center:**
- **Rule Assistant:**
- **Use My Min. Space Rule(μm):**
- **Metal Display:** Current
- **Snap To The Center Between Two Nearby Shapes On Layer:**

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SKILLCAD Create A Via Wall Shield
SKILLCAD Kits, Area/Perimeter Calculator

SKILLCAD Kits

Calculate Area Perimeter
Simple Net R
Fix Offgrid
Sky View
Flip Within BBox
Swap Bit Line (Vass)
Toggle Via CutClass
Full Selection
Select Net Obj
nCopy
Manhattan Edge (Conic)
Create Spiral
Formula Plotter
Fill Holes
Cut Out Short
Cover Fig/Net
Grow Shapes
Edge Grow
Line Distance
Sync Window View
Copy From Background View
Chop Array
Inductor Pin Checker
Create Arc Shapes
Convert Shapes

SKILLCAD Area Perimeter Calculator

Merge Shapes on Different Purpose

Highlight Merged Region With:

Layers of Interest:

Calculations:

Total:

Current Calculation Results:

Area:
Perimeter:

Each Selected Shape
(hier-merged) Shape Under Polyn

Close
Save As Default
Help

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SKILLCAD Index Guide
SKILLCAD Kits, Fix Off Grid

For: 
- Selected Objs
- Current CellView
- Library

Library Name: 

Grid Value(um): 0.005

Convert Conics, Non-orthogonal Paths To Polygons

Keep Diagonal (45 Degree) Turns

OK Cancel Defaults Apply Help

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SKILLCAD Kits, Flip Within A Bounding Box

SKILLCAD Kits

- Calculate Area Perimeter
- Simple Net R
- Fix Ofgrid
- Sky View
- Flip Within BBox
- Swap Bit Line(Vass)
- Toggle Via CutClass
- Full Selection
- Select Net Obj
- nCopy
- Manhattan Edge (Conic)
- Create Spiral
- Formula Plotter
- Fill Holes
- Cut Out Short
- Cover Fig/Net
- Grow Shapes
- Edge Grow
- Line Distance
- Sync Window View
- Copy From Background View
- Chop Array
- Inductor Pin Checker
- Create Arc Shapes
- Convert Shapes

Flip Within Box

- Keep Obj bBox:
  - MX
  - MY
  - R180

- Keep pBoundary Box:
  - MX
  - MY
  - R180

- Keep (LSW) Layer Box:
  - MX
  - MY
  - R180

- All Selected As One:
  - MX
  - MY
  - R180

Close Help
SKILLCAD Kits, Swap Bit Lines

Swap the position of two bit lines and the associated vias.
SKILLCAD Kits, Toggle Via Cut Class

SKILLCAD Kits
- Calculate Area Perimeter
- Simple Net R
- Fix Offgrid
- Sky View
- Flip Within BBox
- Swap Bit Line (Vias)
- Toggle Via CutClass
- Full Selection
- Select Net Obj
- nCopy
- Manhattan Edge (Conic)
- Create Spiral
- Formula Plotter
- Fill Holes
- Cut Out Short
- Cover Fg/Net
- Grow Shapes
- Edge Grow
- Line Distance
- Sync Window View
- Copy From Background View
- Chop Array
- Inductor Pin Checker
- Create Arc Shapes
- Convert Shapes

SKILLCAD Toggle Via cutClass

Toggle Selected Vias:
- Align to Metal Edge: Left, Right, Top, Bottom
- Bigger
- Smaller
- Bigger By V-Line
- Smaller By V-Line
- Change Both Sides in Same Direction

Close Help

8/26/20
SKILLCAD Kits, Full Selection

- Fully select an object, if the object is partially selected by vertex or edge.
- Select a complete object by clicking on it.
- Select all the paths in a bus by drawing a box that intersects the bus.
SKILLCAD Kits, Select Objects On Nets

Select Objects On Nets:
- Net Names:
  - All
  - METAL1
  - METAL2
  - METAL3
  - METAL4
  - METAL5
  - METAL6

Shapes Of:
- All
- METAL1
- METAL2
- METAL3
- METAL4
- METAL5
- METAL6

Vias Of:
- All
- CONT
- VIA12
- VIA23
- VIA34
- VIA45
- VIA56

Options:
- Deselect Others
- Zoom To Sels

Close Help
SKILLCAD Kits, Making Multiple Copies

- Calculate Area Perimeter
- Simple Net R
- Fix Offgrid
- Sky View
- Flip Within BBox
- Swap Bit Line(Vss)
- Toggle Via CutClass
- Full Selection
- Select Net Obj
- nCopy
- Manhattan Edge (Conic)
- Create Spiral
- Formula Plotter
- Fill Holes
- Cut Out Short
- Cover Fig/Net
- Grow Shapes
- Edge Grow
- Line Distance
- Sync Window View
- Copy From Background View
- Chop Array
- Inductor Pin Checker
- Create Arc Shapes
- Convert Shapes

Copies of the Selected Objects: 2

Space Mode: Space

dx: 1  dy: 0

Make Cell

OK  Cancel  Defaults  Apply  Help
SKILLCAD Kits, Creating A Manhattan Edge Shape

SKILLCAD Kits
- Calculate Area Perimeter
- Simple Net
- Fix Offgrid
- Sky View
- Flip Within BBox
- Swap Bit Line(Vss)
- Toggle Via CutClass
- Full Selection
- Select Net Obj
- nCopy
- **Manhattan Edge (Conic)**
- Create Spiral
- Formula Plotter
- Fill Holes
- Cut Out Short
- Cover Fig/Net
- Grow Shapes
- Edge Grow
- Line Distance
- Sinc Window View
- Copy From Background View
- Chop Array
- Inductor Pin Check
- Create Arc Shapes
- Convert Shapes

SKILLCAD Manhattan Edge (Conic)
- Layout Grid: 0.005
- Min Edge Length: 0.005
- Allow Diagonal

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SKILLCAD Kits, Creating A Spiral Shape

SKILLCAD Create Spiral Shape

- From: METAL1
- To: METAL1
- Width (um): 2
- No of Circles: 4.5
- Space (um): 2
- Sides/Circle: 60
- Inner R (um): 5
- Rotate: R0

Done Editing
Hide Cancel Help

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SKILLCAD Kits, Creating Shapes By Equations

SKILLCAD Formula Plotter

- Use Two Formulas
- Width(um): 0.01
- 1st f(x)=
- 2nd f(x)=
- x Range: 0 to 0
- Step: 0.005

Close  Cancel  Help
SKILLCAD Kits, Filling Holes In Shapes

SKILLCAD Kits
- Calculate Area Perimeter
- Simple Net R
- Fix Ofgrid
- Sky View
- Flip Within BBox
- Swap Bit Line(Vass)
- Toggle Via CutClass
- Full Selection
- Select Net Obj
- nCopy
- Manhattan Edge (Conic)
- Create Spiral
- Formula Plotter
- **Fill Holes**
- Cut Out Short
- Cover Fig/Net
- Grow Shapes
- Edge Grow
- Line Distance
- Sync Window View
- Copy From Background View
- Chop Array
- Inductor Pin Checker
- Create Arc Shapes
- Convert Shapes

SKILLCAD Fill Holes
- Fill holes with:
  - Width
  - Area
- From: 0  to:  -1

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SKILLCAD Kits, Cutting Out Overlapping Shapes

SKILLCAD Kits
- Calculate Area/Perimeter
- Fix Offgrid
- Sky View
- Flip Within BBox
- Swap Bit Line (Vass)
- Toggle Via CutClass
- Full Selection
- Select Net Obj
- nCopy
- Manhattan Edge (Conic)
- Create Spiral
- Formula Plotter
- Fill Holes
- Cut Out Short
- Cover Fig/Net
- Grow Shapes
- Edge Grow
- Line Distance
- Sync Window View
- Copy From Background View
- Chop Array
- Inductor Pin Checker
- Create Arc Shapes
- Convert Shapes

SKILLCAD Cut Out Short
- Space From Existing Shapes: 1
- Min Width: 1

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SKILLCAD Kits, Cover Mask Shape

SKILLCAD Cover Mask Shape

- Cover By Layer Name: Same
- Layer Purpose: Same
- Trace Shape/Net to Level: 32
- Size By: [Input Field]

- Selected TopLevel Shapes and Instances (No Trace)
- Trace Clicked Shape
- Trace Selected Shapes
- Trace Clicked Net
- Trace Selected Nets

8/26/20
SKILLCAD Kits, Growing Shapes From Existing Shapes
SKILLCAD Kits, Growing Shapes From Existing Edges

SKILLCAD EDGE GROW

- Side Num.: 1
- Grow Mode: Outer
- Order Num.: A11
- Side Width: 1
- Side Spacing: 1

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SKILLCAD Index Guide 95
Measure and display the linear distance across an object, or objects.
SKILLCAD Kits, Syncing Window Views

- SKILLCAD Kits
- Calculate Area Perimeter
- Simple Net R
- Fix Offgrid
- Sky View
- Flip Within BBox
- Swap Bit Line (Vss)
- Toggle Via CutClass
- Full Selection
- Select Net Obj
- nCopy
- Manhattan Edge (Conic)
- Create Spiral
- Formula Plotter
- Fill Holes
- Cut Out Short
- Cover Fig/Net
- Grow Shapes
- Edge Grow
- Line Distance
- Sync Window View
- Copy From Background View
- Chop Array
- Inductor Pin Checker
- Create Arc Shapes
- Convert Shapes

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SKILLCAD Index Guide
SKILLCAD Kits, Copying From A Background View
SKILLCAD Kits, Chopping An Existing Array

SKILLCAD CHOP ARRAY

Region By  Polygon  Rectangle  Shape
Division Area  Include  Overlap  Remove edge  Keep Edge
Direction  Inside  Outside
Action  Remove  Divide Only  Replace Master
Replace To  Lib
Cell
View
Snap Mode  orthogonal
Hierarchy
Lift Up Shapes
Save As Cell

8/26/20
SKILLCAD Kits, Creating Arc Shapes

- Calculate Area Perimeter
- Simple Net R
- Fix Offgrid
- Sky View
- Flip Within BBox
- Swap Bit Line (Vss)
- Toggle Via Cut Class
- Full Selection
- Select Net Obj
- nCopy
- Manhattan Edge (Conic)
- Create Spiral
- Formula Plotter
- Fill Holes
- Cut Out Short
- Cover Fig/Net
- Grow Shapes
- Edge Grow
- Line Distance
- Sync Window View
- Copy From Background View
- Chop Array
- Inductor Pin Checker
- Create Arc Shapes
- Convert Shapes

SKILLCAD Arc Shapes

- Template:
- Layer:
- Shape Type: Arc90
- Radian (um) (r):
- Space (sp1):
- Space (sp2):
- Width (w):
- No. of Tracks:
- Extension (ext):

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SKILLCAD Kits, Converting Objects

SKILLCAD Convert Object

- Polygon->Path
- Path->Polygon
- Path->PathSeg
- Polygon->PathSeg

Close  Help
SKILLCAD Track Transition Connector
SKILLCAD View Track Patterns

SKILLCAD Track Functions

- Nano Track Router
- Transition Connector
- View Patterns
- Push Bus To Tracks
- Fill Via By Click
- Fill Via By Box (Same Net)

SKILLCAD View Track Pattern

<table>
<thead>
<tr>
<th>Group:</th>
<th>Layer:</th>
<th>Pattern:</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALL</td>
<td>METAL4 drawing</td>
<td>METAL2</td>
</tr>
<tr>
<td>core</td>
<td>METAL3 drawing</td>
<td>METAL1</td>
</tr>
<tr>
<td>mem</td>
<td>METAL2 drawing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>METAL1 drawing</td>
<td></td>
</tr>
</tbody>
</table>
SKILLCAD Pushing Bus Metals To The Track Patterns

Push bus metals to the track patterns.
SKILLCAD Click To Fill Metal Overlaps With Vias

Fill metal overlaps with vias by clicking on the overlap.
Fill metal overlaps on the same nets, with vias, in a rectangular region.
SKILLCAD Setup Technology Library

Set Up...
Preferences...
Show SKILLCAD Icons
SKILLCAD Plus
MultiColor Functions
uniVia
Stretch Via...
SegJumper...
SegEditor...
Free Jumper
ShieldBus
Bus Joint...
vEditor
rSolver...
Place
Step Router
Track Functions
Layer Handler
Get Net
Pin Functions
Label Functions
Slot Path
Fill Dummy
Kits
xView
Check in License
About...

Technology Library: techLib
Routing Layers
Special Metals
Label Layers
Base Layers
Implant Groups

Technology Library:

Template File: _training_xedTechFiles.txt

Rule Category: Default

Layout Grid (um): 0.005
DB Unit (um): 1000

Get Basic Initial Setup from Virtuoso Tech File

Use Standard Via defined in Virtuoso TechFile (Recommended)
SKILLCAD Setup Special Metals

Special Metals are not for signal or power routing, such as MIMCAP metal.

Number of Special Metals: ☐ ☐

Tech 1h
Routing Layers
Special Metals
Label Layers
Base Layers
Implant Groups

Template File: /trasing/sedTechfile.txt
Rule Category: Default

Steps: Tech Layers, Equivalent Layers, Rules, Keepouts, Cost, Slot, Compile

Close Help
SKILLCAD Setup LVS Labels, Pin Layers

Set Up...
Preferences...
Show SKILLCAD Icons
SKILLCAD Plus
MultiColor Functions
uniVia
Stretch Via...
SegJumper...
SegEditor...
Free Jumper
ShieldBus
Bus Joint...
vEditor
rSolver...
Place
Step Router
Track Functions
Layer Handler
Get Net
Pin Functions
Label Functions
Slot Path
Fill Dummy
Kits
xView
Check in License
About...

Template File: _training_/sclTechFile.txt
Rule Category: Default
Steps: Tech Layers, Equivalent Layers, Rules, Keepouts, Cost, Sort, Compile

General Purpose Label Layer: TEXT drawing
Default Pin Label Type: Text, Display, Label

METAL1 drawing: METAL1 pin
METAL2 drawing: METAL2 pin
METAL3 drawing: METAL3 pin
METAL4 drawing: METAL4 pin
METAL5 drawing: METAL5 pin
METAL6 drawing: METAL6 pin

LVSS Label Layer
Shape Pin Layer

Apply
Close Help
SKILLCAD Setup Base Layers

1. **Set Up...**
2. **Preferences...**
   - Show SKILLCAD Icons
   - SKILLCAD Plus
   - MultiColor Functions
   - uniVia
3. **Stretch Via...**
4. **SegJumper...**
5. **SegEditor...**
6. **Free Jumper**
7. **ShieldBus**
8. **Bus Joint...**
9. **vEditor**
10. **rSolver...**
11. **Place**
12. **Step Router**
13. **Track Functions**
14. **Layer Handler**
15. **Get Net**
16. **Pin Functions**
17. **Label Functions**
18. **Slot Path**
19. **Fill Dummy**
20. **Kits**
21. **xView**
22. **Check in License**
23. **About...**
SKILLCAD Setup Implant Groups

Set Up...
Preferences...
Show SKILLCAD Icons
SKILLCAD Plus
MultiColor Functions
uniVia
Stretch Via...
SegJump...
SegEditor...
Free Jumper
ShieldBus
Bus Joint...
vEditor
rSolver...
Place
Step Router
Track Functions
Layer Handler
Get Net
Pin Functions
Label Functions
Slot Path
Fill Dummy
Kits
xView
Check in License
About...

SKILLCAD Setup Form

Template File: p_training\docTechfile.txt
Rule Category: Default
Steps: Tech Layers, Equivalent Layers, Rules, Keepouts, Cost, Sites, Compile

This step is not needed when using standard views from Virtuoso Techfile
SKILLCAD Setup Equivalent Layers

SKILLCAD Setup Form

- Template File
- Rule Category: Default
- Equivalent Layers
- METAL1 drawing
  - Add Equivalent LPR For Selected Metal: METAL1 pin
- METAL2 drawing
  - Add Equivalent Purpose For All Metals: 基层
SKILLCAD Setup General Metal/Via Rules

Set Up...
Preferences...
Show SKILLCAD Icons
SKILLCAD Plus
MultiColor Functions
uniVia
Stretch Via...
Seg jumper...
Seg Editor...
Free Jumper
Shield Bus
Bus Joint...
vEditor
rSolver...
Place
Step Router
Track Functions
Layer Handler
Get Net
Pin Functions
Label Functions
Slot Path
Fill Dummy
Kits
xView
Check in License
About...
SKILLCAD Setup Individual Metal Layer Rules
SKILLCAD Setup Wire Configuration Rules (Nano Router)
SKILLCAD Setup Metal And Via Keepout Regions

Set Up...
Preferences...
Show SKILLCAD Icons
SKILLCAD Plus
MultiColor Functions
uniVia
Stretch Via...
SegJumper...
SegEditor...
Free Jumper
ShieldBus
Bus Join...
vEditor
rSolver...
Place
Step Router
Track Functions
Layer Handler
Get Net
Pin Functions
Label Functions
Slot Path
Fill Dummy
Kits
xView
Check in License
About...

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SKILLCAD Index Guide 120
SKILLCAD Define Metal Direction And Via Costs

Set Up...
Preferences...
Show SKILLCAD Icons
SKILLCAD Plus
MultiColor Functions
uniVia
Stretch Via...
SegJumper...
SegEditor...
Free Jumper
ShieldBus
Bus Joint...
vEditor
rSolver...
Place
Step Router
Track Functions
Layer Handler
Get Net
Pin Functions
Label Functions
Slot Path
Fill Dummy
Kits
xView
Check in License
About...

SKILLCAD Setup Form

Recommendations for a good route result:
1. Set the cost of non-preferred direction 1.2 times bigger than that of preferred direction.
2. Set the cost of a via layer 1.2 times bigger than cost of non-preferred direction of the via metals.
3. Avoid setting layer cost to 0.
SKILLCAD Setup Metal Slotting Parameters

SKILLCAD Setup Form

- Template File: \_training\_sodTechfile.txt
- Rule Category: Default
- Slot Layer: Select Layer...
- Slot Mode: Cut Holes on Metal
- Slot Size: Width (10), Length (5), Min. Slot Horizontal Span (5), Min. Slot Vertical Span (6), Stagger Spaces (3)
- Slot Corner: No
- Slot Corner Slot Length (3)

SKILLCAD Menu:
- Set Up...
- Preferences...
- Show SKILLCAD Icons
- SKILLCAD Plus
- MultiColor Functions
- uniVia
- Stretch Via...
- SegJumper...
- SegEditor...
- Free Jumper
- ShieldBus
- Bus Joint...
- vEditor
- rSolver...
- Place
- Step Router
- Track Functions
- Layer Handler
- Get Net
- Pin Functions
- Label Functions
- Slot Path
- Fill Dummy
- Kits
- xView
- Check in License
- About...

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SKILLCAD Compiling The Setup File

Set Up...
Preferences...
Show SKILLCAD Icons
SKILLCAD Plus
MultiColor Functions
uniVia
Stretch Via...
Segumper...
SegEditor...
Free Jumper
ShieldBus
Bus Joint...
vEditor
rSolver...
Place
Step Router
Track Functions
Layer Hendler
Get Net
Pin Functions
Label Functions
Slot Path
Fill Dummy
Kits
xView
Check in License
About...

Please:
1) Check the rules
2) Save the rules to a Template File
3) Load the saved file — and you are ready to use the tool
4) Click the ‘?’ at the top left to learn how to auto load the rule files.
SKILLCAD Customizing The Icon Bar

Customize the functions that appear on the icon bar.

Set Up...
Preferences...
Show SKILLCAD Icons
SKILLCAD Plus
MultiColor Functions
uniVia
Stretch Via...
SegJumper...
SegEditor...
Free Jumper
ShieldBus
Bus Joint...
vEditor
rSolver...
Place
Step Router
Track Functions
Layer Hendler
Get Net
Pin Functions
Label Functions
Slot Path
Fill Dummy
Kits
xView
Check in License
About...

SKILLCAD Setup Form

Template File: _training/...odTechFile.txt
Rule Category: Default
Steps: Tech Layers, Equivalent Layers, Rules, Keepouts, Cost, Slot

Customize Icon Bar

Please:
1) Check the rules
2) Save the rules to a Template File
3) Load the saved file — and you are ready to use the tool
4) Click the '?' at the top left to learn how to auto load the rule files.
SKILLCAD Setting Up User Preferences

SKILLCAD User Preferences

Set Up
Preferences...
Show SKILLCAD Icons
SKILLCAD Plus
MultiColor Functions
uniVia
Stretch Via...
SegJump...
SegEditor...
Free Jumper
ShieldBus
Bus Joint...
vEditor
rSolver...
Place
Step Router
Track Functions
Layer Handler
Get Net
Pin Functions
Label Functions
Slot Path
Fill Dummy
Kits
xView
Check in License
About...

Template: /home/jamey/.sofdenv.tech11

Check the box to turn off the pop up dialog on these events:

- 001, Non-Preferred Dir routing Violation
- 002, Via/Bus Space Violation
- 003, Unable to Finish Route
- 004, Unable to connect to the ending layer
- 005, Malformed BusPath
- 006, (Matched) Path/Bus self-intersecting
- 007, Non-orthogonal Routing
- 008, The filled flat uni/visas are saved to a cell

Set SKILLCAD Command Forms Position
Form Left Side at: 10
Form Top Side at: 400
By drawing a small box on screen:

Hide SKILLCAD Tool Bar
Place On: Left, Top, Right, Bottom

Set Bindkeys 1, 2, 3... for Frejumper
Probe net with color: cycle
Scratch Library: Current Library
Use Path/Seg

8/26/20
SKILLCAD Complete Setup

Set Up...
Preferences...
Show SKILLCAD Icons
SKILLCAD Plus
MultiColor Functions
uniVia
Stretch Via...
SegJumper...
SegEditor...
Free Jumper
ShieldBus
Bus Joint...
vEditor
rSolver...
Place
Step Router
Track Functions
Layer Hendler
Get Net
Pin Functions
Label Functions
Slot Path
Fill Dummy
Kits
xView
Check in License
About...

Technology Library: techLib
Routing Layers
Special Metals
Label Layers
Base Layers
Implant Groups
Layout Grid (um): 0.005
DB Unit (um): 1000
Use Standard Via defined in Virtuoso Techfile (Recommended)

Get Basic Initial Setup from Virtuoso Tech File

SKILLCAD Setup Form

Template File: _training\_sedTechFiles.txt
Rule Category: Default

Steps: Tech Layers Equivalent Layers Rules Keepouts Cool Slot Complete

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SKILLCAD Index Guide 126
Click on Open SKILLCAD DRC Viewer.

Type _skdCBGui() on the command line in the CIW.

This brings up the SKILLCAD Fill Via in DRC Results form.

This brings up the SKILLCAD DRC Viewer form.
SKILLCAD Align Instance Pins to Neighbor

SKILLCAD Pin Functions
- Pin Plexer/Browser
- Align Inst/Pins To Neighbor
- Align Inst/Pins To Top
- Quick Label(Pins)
- Promote Pins
- Create Pin From Label
- Create Pin From Coord
- Expand Pin To Shape
- Align/Distribute Pins
- Change Pin Size/Layer
- Rename Pin/Label
- Cover Pins By Metal Drawing

SKILLCAD Align Pins
- Get Pin Inst:
- Get Ref Insts:
- Match Reference Pins:
  - Layer
  - Size
- Pin Placement Mode:
  - At prBoundary Face To Face
  - At prBoundary Evenly Distribute
  - Under Reference Pins
- Work On Selected Softblock Pins:
- Highlight
- Side:
  - All
  - Top
  - Bottom
  - Left
  - Right

Close  Help
SKILLCAD Align Instance Pins to Top

SKILLCAD Pin Functions
- Pin Place/Browser
- Align Inst/Pins to Neighbor
- Align Inst/Pins to Top
- Quick Label(Pin)
- Promote Pins
- Create Pin from Label
- Create Pin from Coord
- Expand Pin to Shape
- Align/Distribute Pins
- Change Pin Size/Layer
- Rename Pin/Label
- Cover Pins By Metal Drawing

SKILLCAD Align Pins To Top
- Get Pin Inst
- Match Top Pins: Layer, Size
- Pin Place Mode:
  - At pr/Boundary Face To Face
  - At pr/Boundary Evenly Distribute
  - Under Top Pins
- Work On Selected Softblock Pins
- Highlight
- Side: All, Top, Bottom, Left, Right

Applying...
How To Use The SKILLCAD Index Guide

The SKILLCAD Index Guide was developed to help designers to know what SKILLCAD Commands are available and where to find the commands on the SKILLCAD tool bar or menu. It also contains a brief description of the commands, indicates which commands are most often used by layout designers, and which commands should work completely or partially in advanced nodes (N10, N7, N5, etc.). The most useful commands are highlighted in yellow, and the commands that can be used in advanced nodes are designated with an Asterix (*). Each indexed and linked command also calls a page containing links for all the available training materials for that command (PDF, Word Document or PowerPoint Presentation, and video). These are the same training materials available from the SKILLCAD Topical Guide. A link on the first page of the Index Guide will call the Topical Guide. Both guides are available to help a designer know how to use the SKILLCAD functions.

To use the Index Guide, just click on the SKILLCAD command in the index pages. The command link will call the page showing where the command is found on the SKILLCAD tool bar or menu, and what the next level menu or form contains. This page also contains links to the training materials and video. In a few cases, a command will be listed in the index pages, but is not yet linked to another page. This is usually a new command that does not yet have training materials. The index section on SKILLCAD Setup contains training materials for setting up the technology file, used by the SKILLCAD tools.

Example: Select Bus Connect(BusJoint) in the guide. This will take you to the page showing how to access the command, as well as links to the training materials.