CADSTAR

Jeroen Leinders

CADSTAR Distribution Manager

Introduction

- I'm the CADSTAR distribution manager for Zuken managing approximately 30 resellers worldwide, based out of my home office in the Netherlands. Having a diploma in electronics and been involved in electronic product design and manufacturing since 1985. I'm working for Zuken since 1999, first being in charge of the CADSTAR Sales in Belgium, Netherlands and the Luxembourg, appointed as European Distribution Manager in 2001, before being appointed as worldwide Distribution Manager in 2005. I'm married and have two daughters. Hobbies: I like to go on holiday, drive motor bike and play badminton

Contact Details

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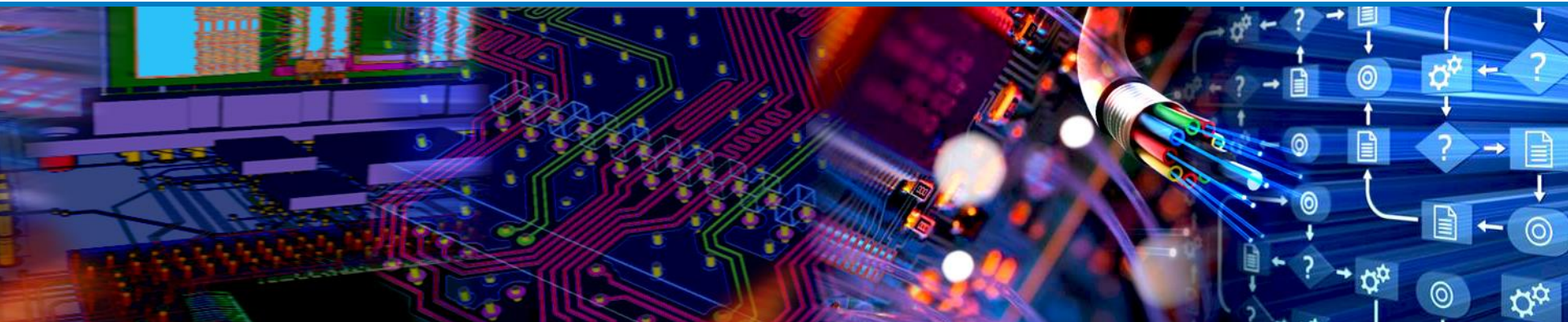
P: +31 475 481568

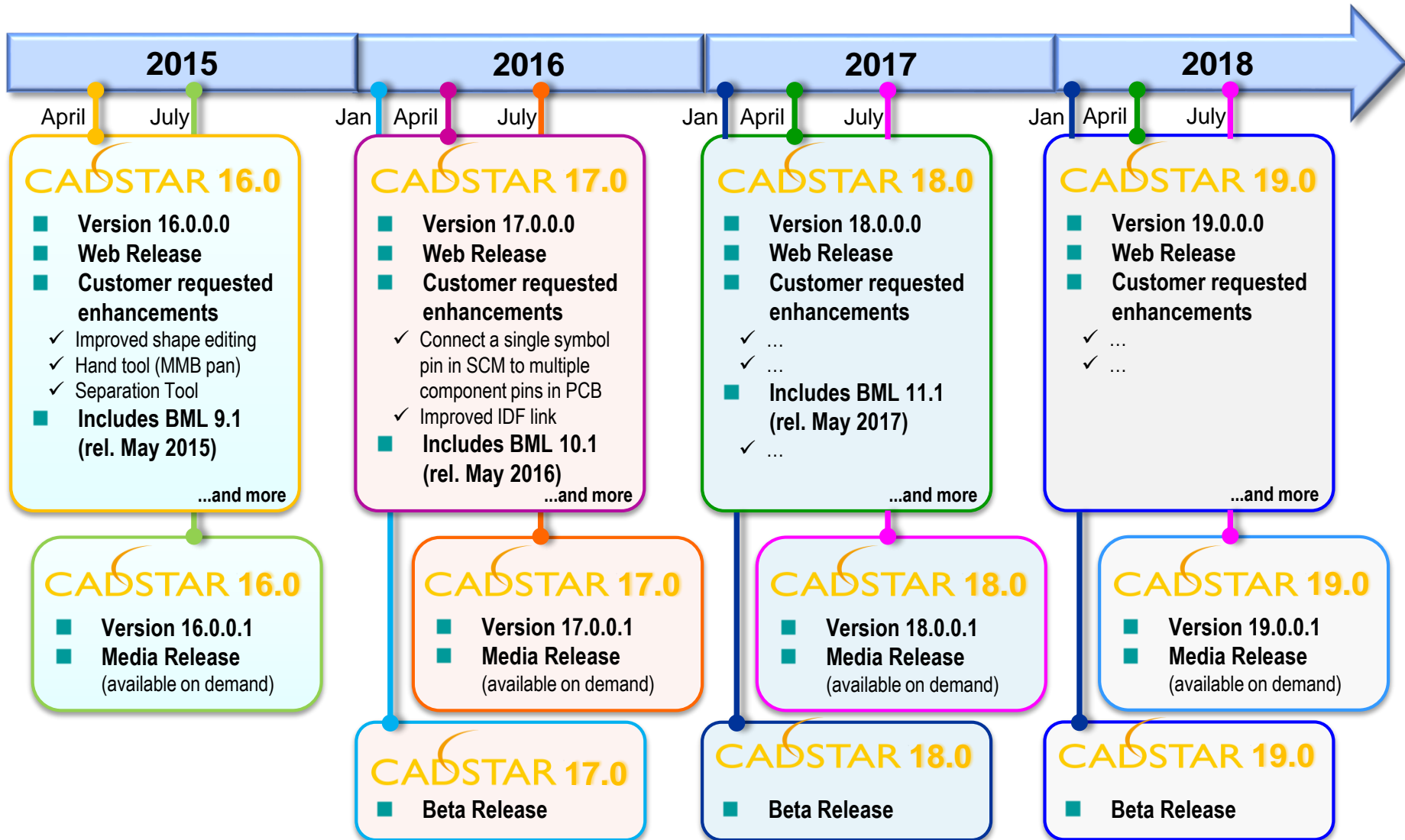M: +31 6 22557408

E: jeroen.leinders@zuken.com

CADSTAR Release Schedule
(All plans are subject to change)

Presented by Jeroen Leinders

CADSTAR Distribution Manager

Current CADSTAR release schedule

ZUKEN®

2015	2016	2017	2018
April July	Jan April July	Jan April July	Jan April July

CADSTAR 16.0

- **Version 16.0.0.0**
- **Web Release**
- **Customer requested enhancements**
  - ✓ Improved shape editing
  - ✓ Hand tool (MMB pan)
  - ✓ Separation Tool
- **Includes BML 9.1 (rel. May 2015)**

...and more

CADSTAR 17.0

- **Version 17.0.0.0**
- **Web Release**
- **Customer requested enhancements**
  - ✓ Connect a single symbol pin in SCM to multiple component pins in PCB
  - ✓ Improved IDF link
- **Includes BML 10.1 (rel. May 2016)**

...and more

CADSTAR 18.0

- **Version 18.0.0.0**
- **Web Release**
- **Customer requested enhancements**
  - ✓ ...
  - ✓ ...
- **Includes BML 11.1 (rel. May 2017)**
  - ✓ ...

...and more

CADSTAR 19.0

- **Version 19.0.0.0**
- **Web Release**
- **Customer requested enhancements**
  - ✓ ...
  - ✓ ...

...and more

CADSTAR 16.0

- **Version 16.0.0.1**
- **Media Release**
  (available on demand)

CADSTAR 17.0

- **Version 17.0.0.1**
- **Media Release**
  (available on demand)

CADSTAR 18.0

- **Version 18.0.0.1**
- **Media Release**
  (available on demand)

CADSTAR 19.0

- **Version 19.0.0.1**
- **Media Release**
  (available on demand)

CADSTAR 17.0

- **Beta Release**

CADSTAR 18.0

- **Beta Release**

CADSTAR 19.0

- **Beta Release**

The release schedule is as usual a subject of change if circumstances require!

What's targeted for CADSTAR 17.0
(All plans are subject to change)
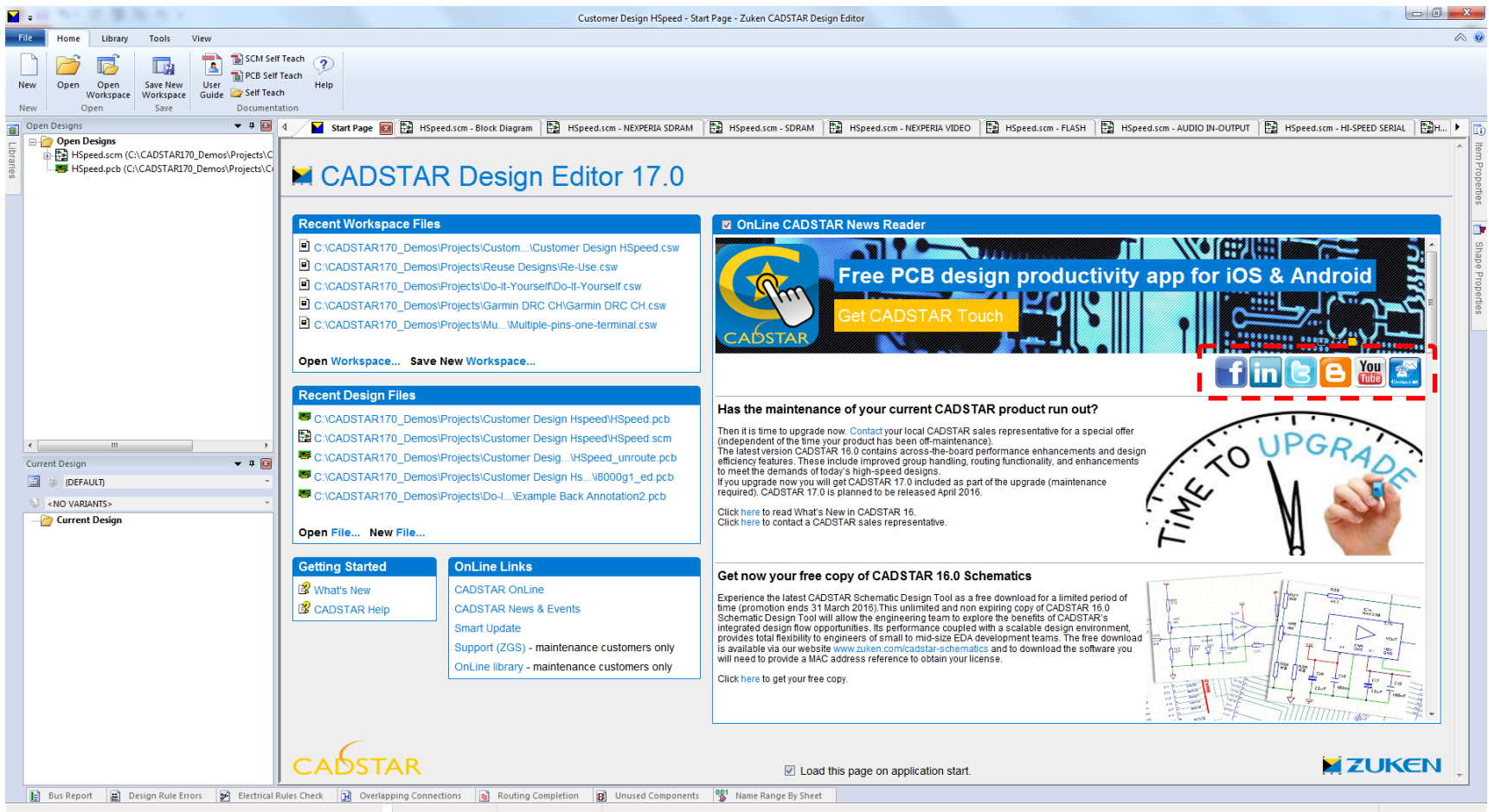
Presented by Jeroen Leinders

CADSTAR Distribution Manager

What's targeted for CADSTAR 17.0

- Updated Online CADSTAR News Reader
  - Social media is becoming more and more important

What's targeted for CADSTAR 17.0

- Support of Windows 10

- Connect a single symbol pin in SCM to multiple component pins in PCB

What's targeted for CADSTAR 17.0

- **IDF Export - Advanced naming configurations**
  - Provide option(s) to perform name mapping for Ref/Alternate in a similar way to the old LatimerCAD IDF link (i.e. non-reversibly but simple)
    - Some users have built 3D model libraries with symbols named in the way the old LatimerCAD IDF link generated them. It was not possible to generate the same names using the CADSTAR IDF Link
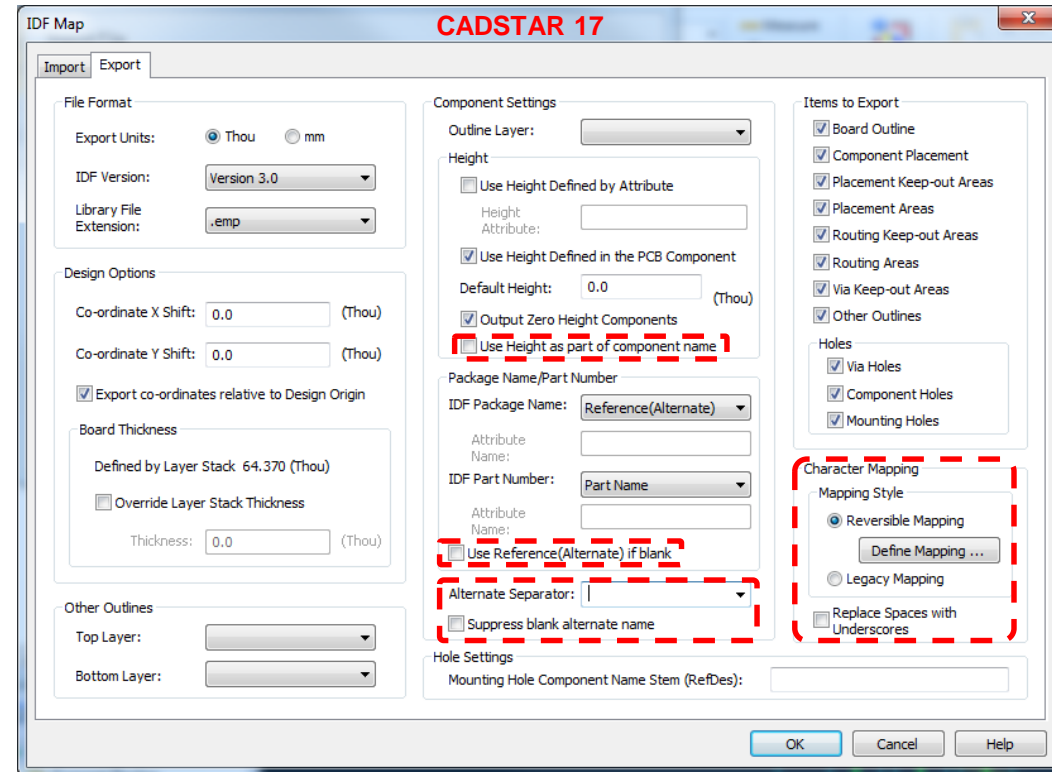
- Allow user to define a temporary selection origin desirable for a specific operation; multiple selections of items, including groups and reuse blocks

  – Similar behavior as in the Place & Route Editor
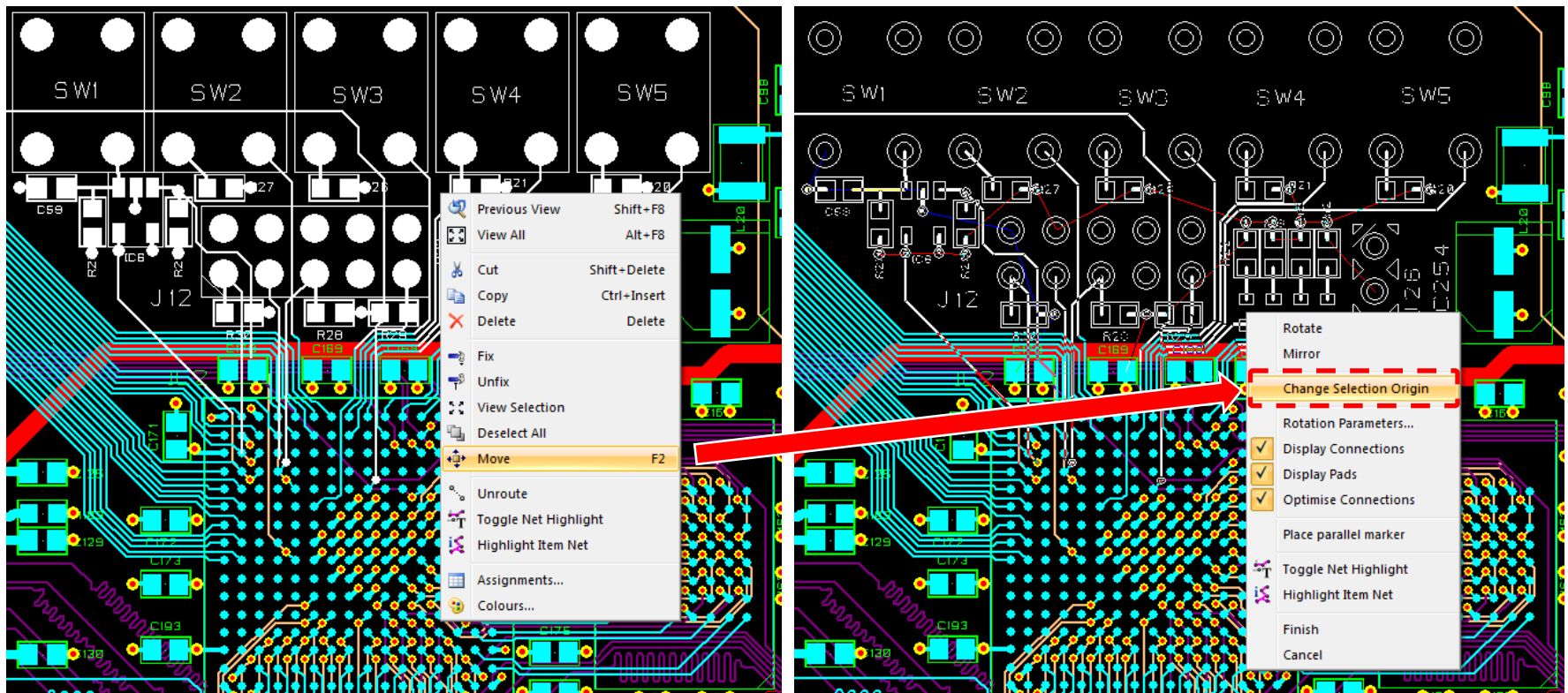
What's targeted for CADSTAR 17.0

- Report Generation without Library
  - From a SCM design, the ability to run a component-type report from the Report Generator is now possible
    - When there is no component library
    - Or there are missing components in the library
  - Since component definitions may not be available, the report generated may not contain complete information. You will be warned of this

Report Generator

⚠ Some PCB Component definitions are not available; this report may not contain complete PCB information.

Do you wish to continue?

Yes   No
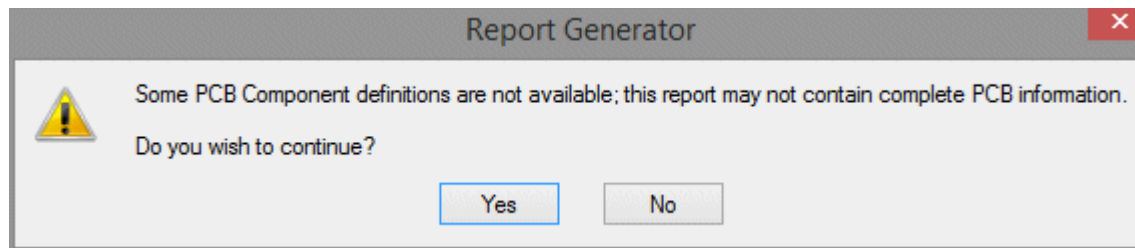
What's targeted for CADSTAR 17.0

- Allow dimensions to be stored in footprints
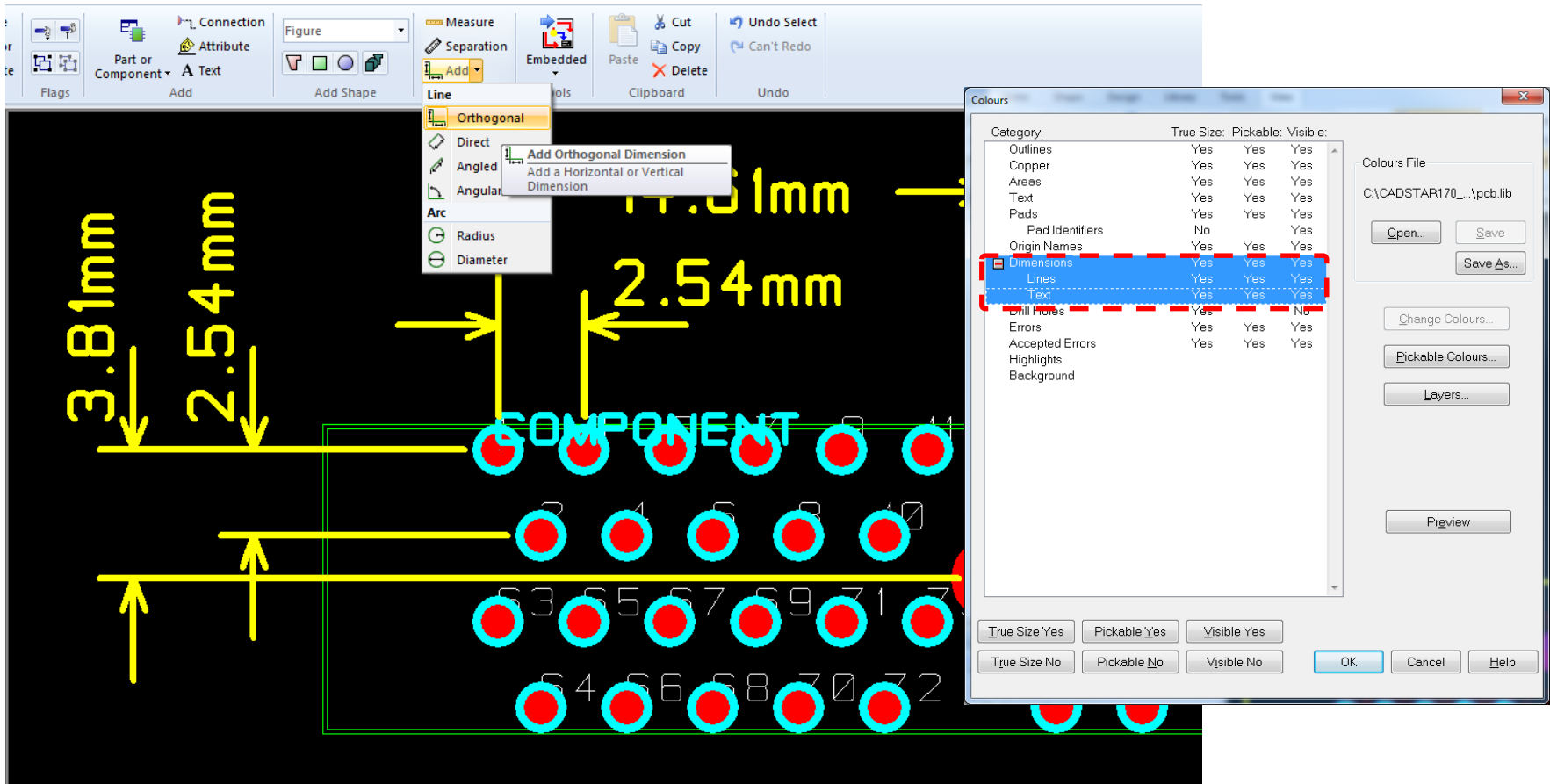
- Apply Readability of component dimension text in Design Editor
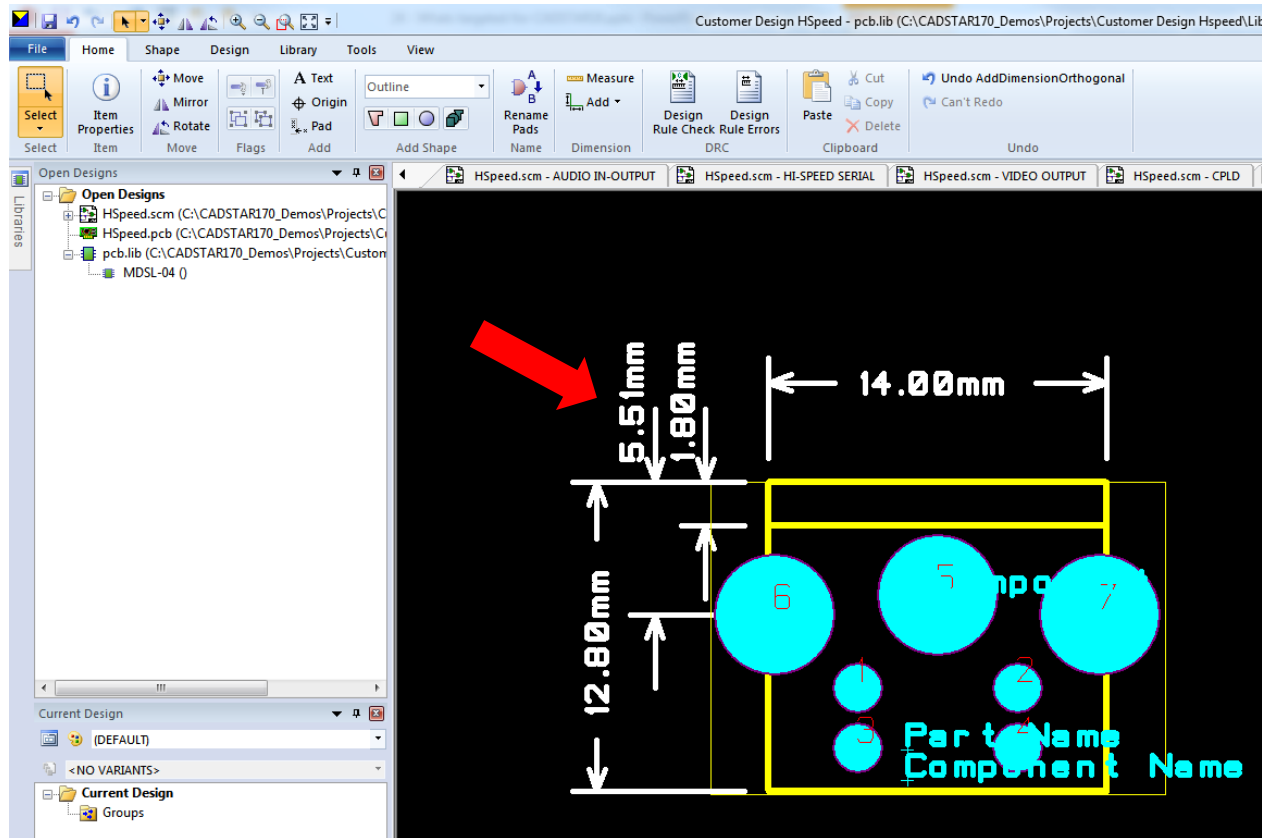
What's targeted for CADSTAR 17.0

- When adding a bus of the same name as an existing bus, the existing bus properties (restrictive bus properties, attributes, bus signals) to be replicated on the added bus (even to other sheets where the same bus occurs)

  – Buses sharing the same name needs to be considered to be the same bus

  – It reduces the chance that bus restrictions can be overlooked or incorrectly entered on multiple versions of the same item
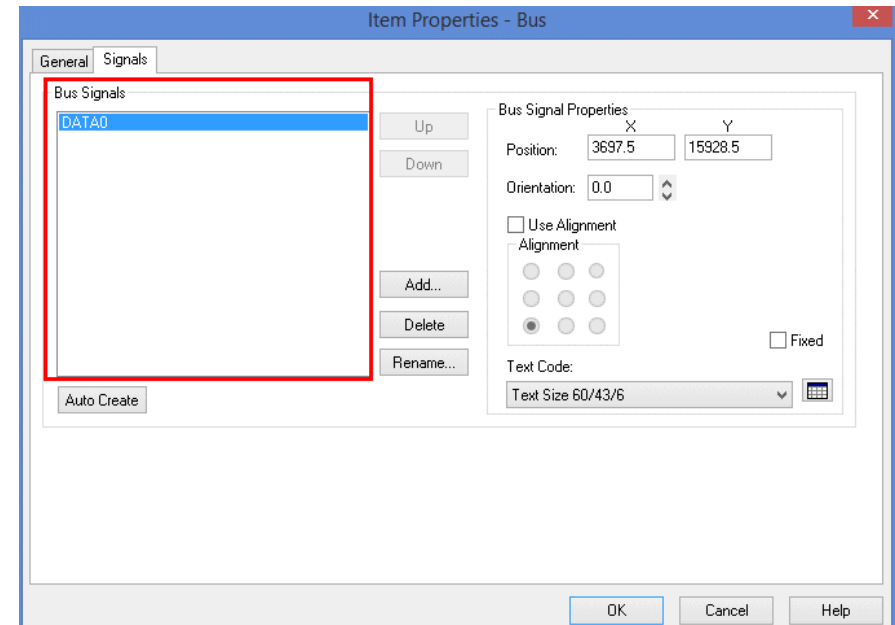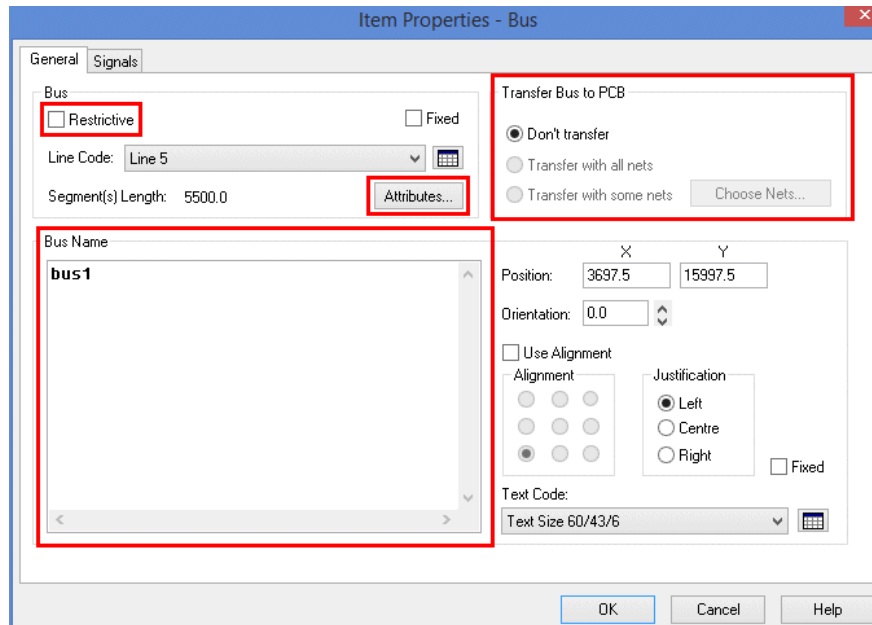
What's targeted for CADSTAR 17.0

- **Bus Links**
  - An enhancement has been made to buses allowing you to view and/or 'jump' to other buses with the same name elsewhere in the design
  - The link can be double clicked on the canvas to navigate to other buses in the design or by using the context menu
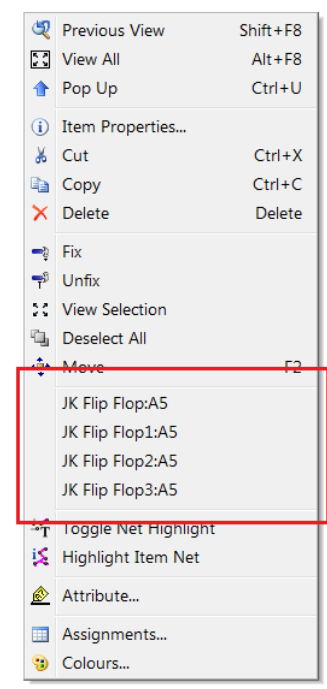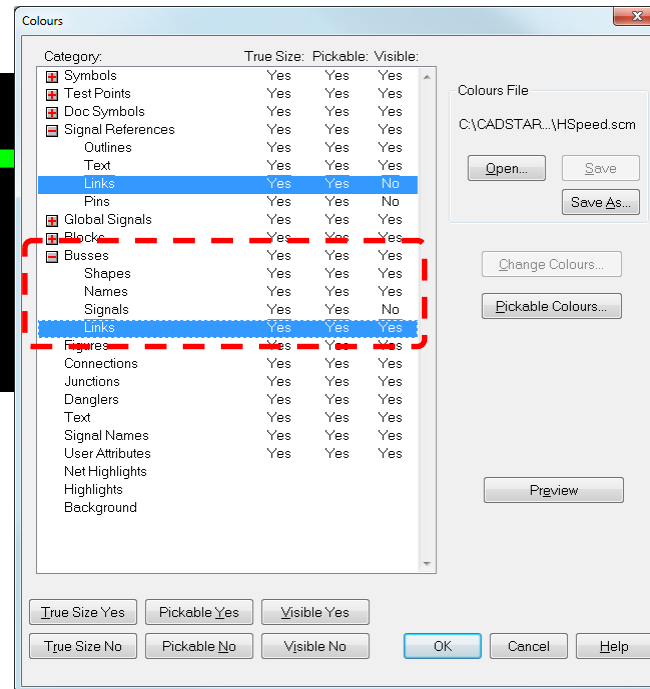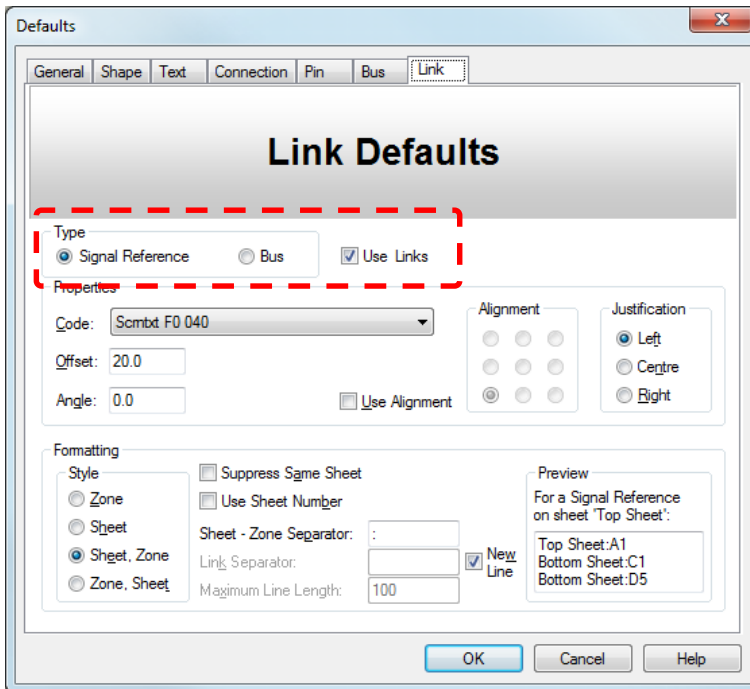
- Signal Name Origin
 - It is now possible to add a Signal Name Origin to single pin symbols
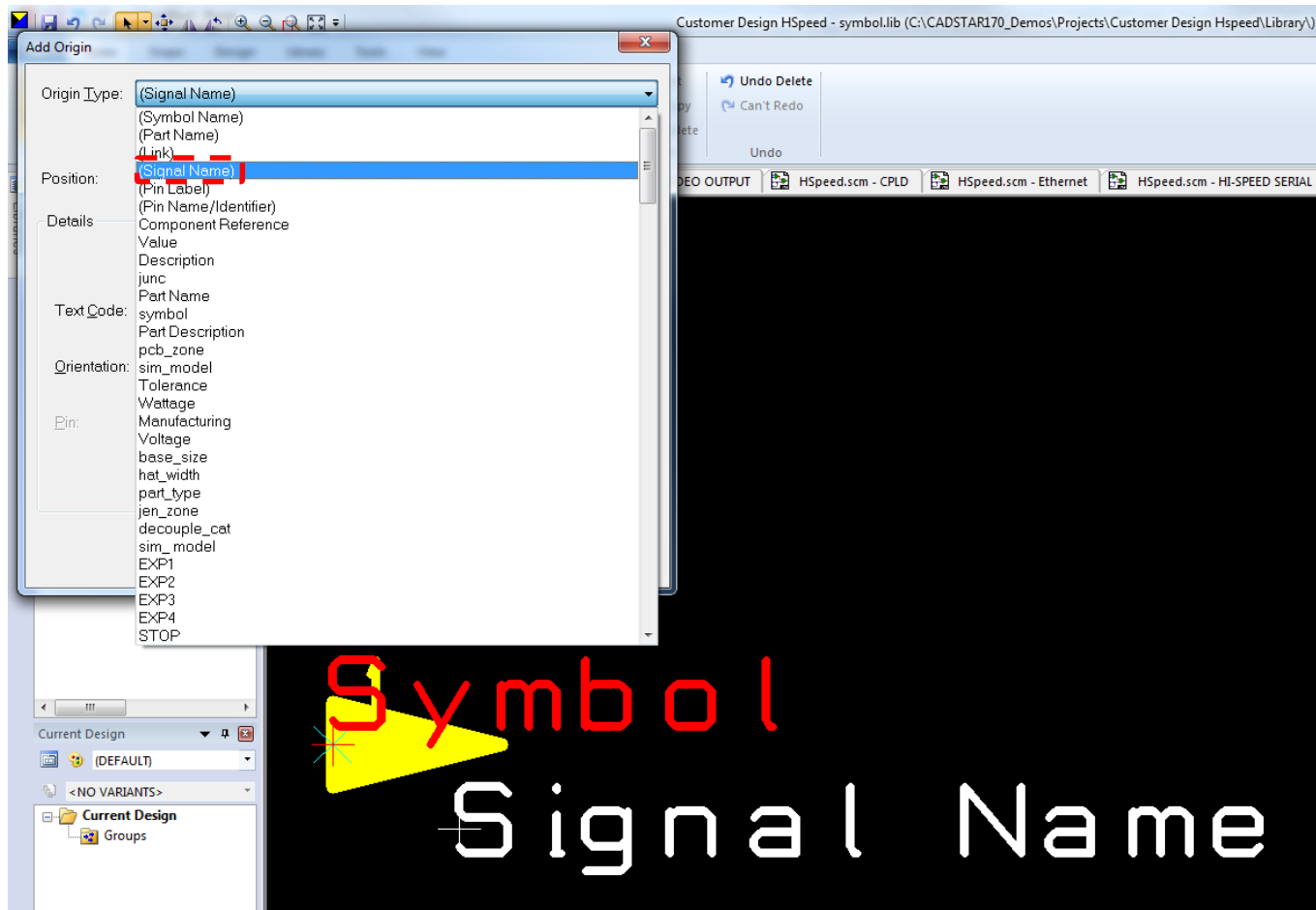
- **Closed Shape Toggle**
  - This new command (added to the context menu) that can be selected toggles the shape that is under construction between being an open and a closed shape
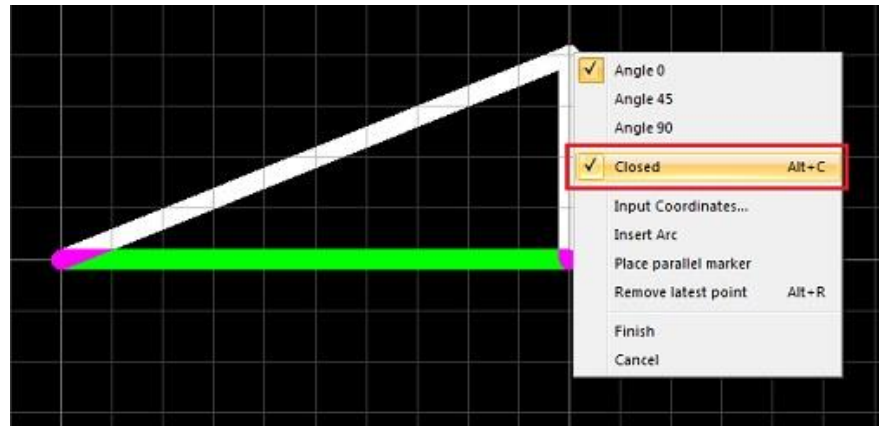
- Enhanced Input Coordinate dialog to add polygon segment by angle
  - Segment length - The length of the desired line segment
  - X change - The distance the line segment will travel along the X axis
  - Y change - The distance the line segment will travel along the Y axis
  - X position - The position on the X axis where the line segment will end
 - Y position - The position on the Y axis where the line segment will end

Y position = exact coordinate on the Y-axis

X position = exact coordinate on the X-axis
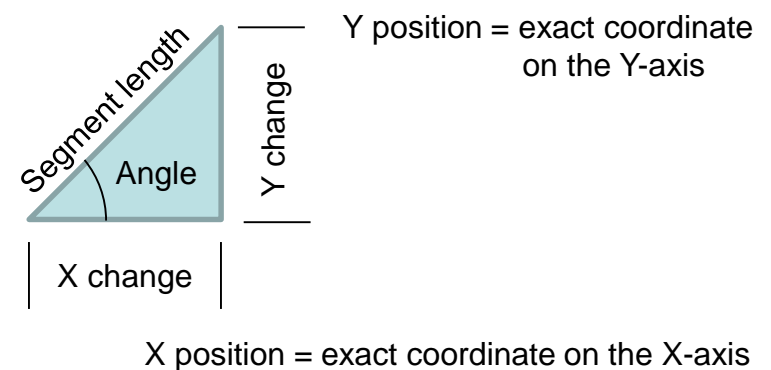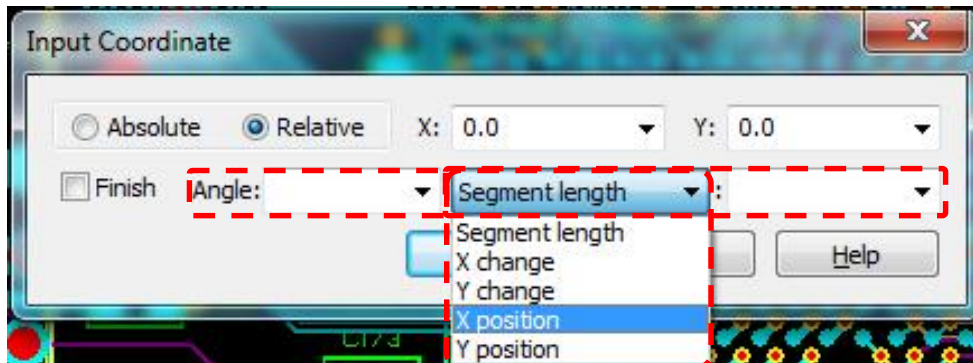
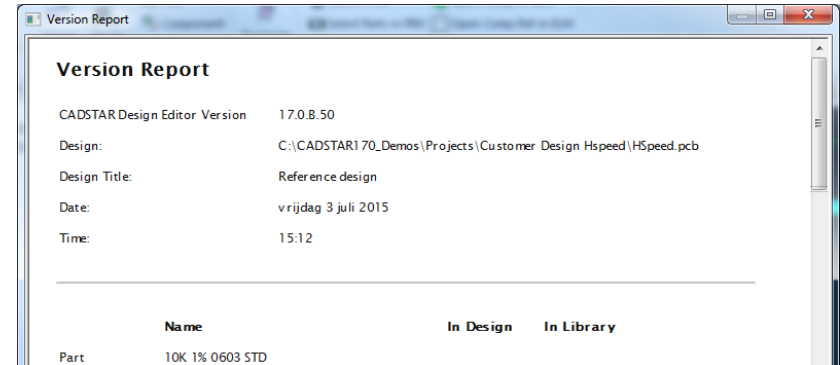# What's targeted for CADSTAR 17.0
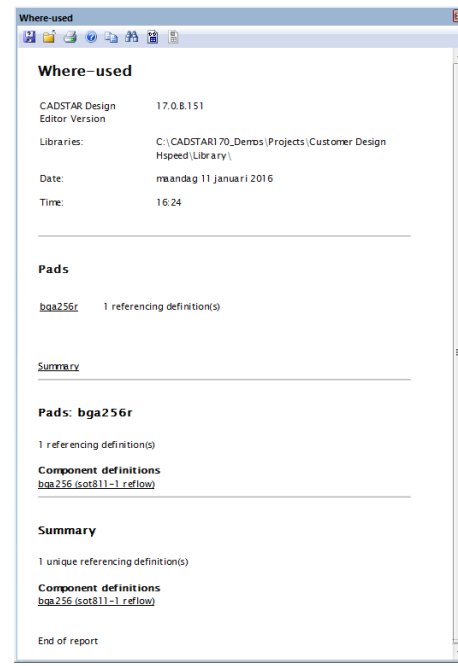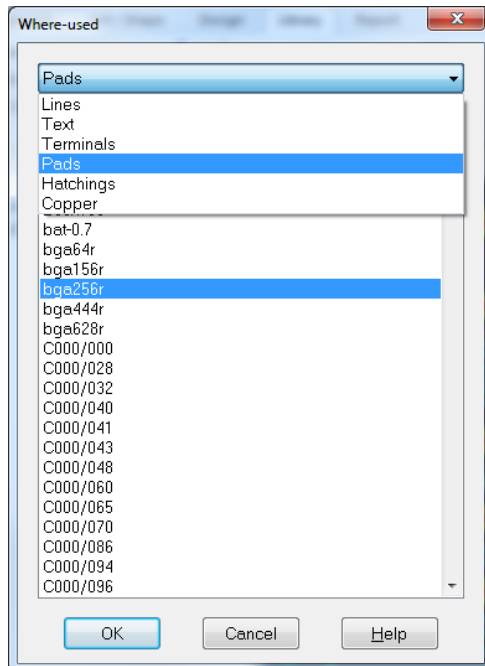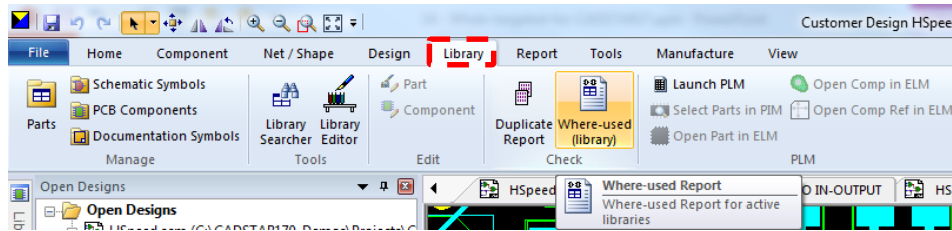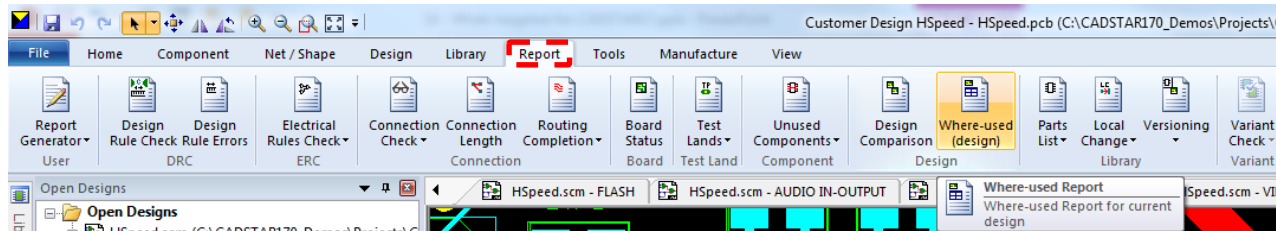
- "Where used?" report
  - A new report has been introduced that will find all the symbols/components that use specified assignment codes
  - The report can be run on the libraries or the current Schematic or PCB design
  - The generated report will be 'active and clicking any of the listed definitions or design items will open that definition or select the design item
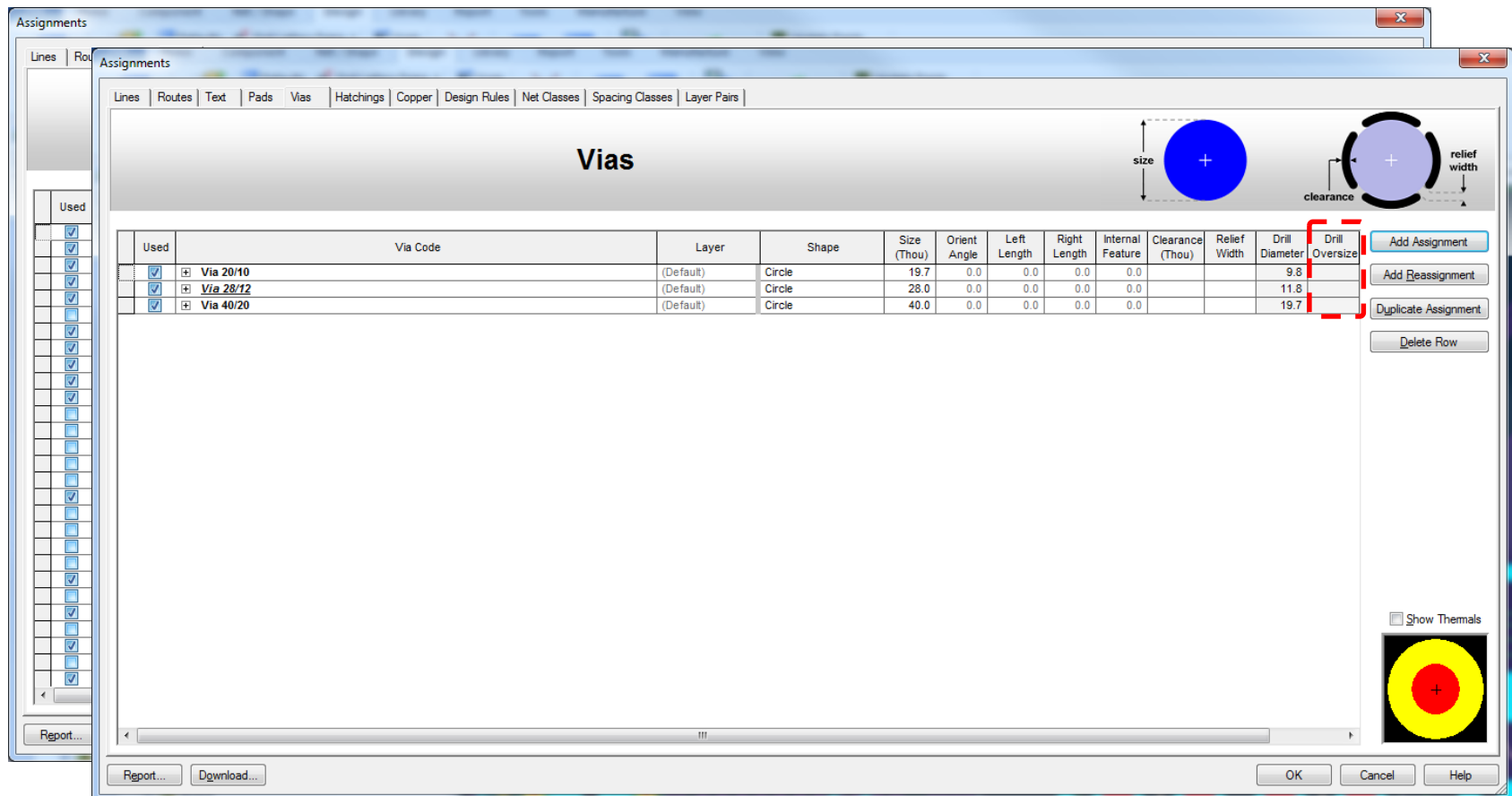
What's targeted for CADSTAR 17.0

- **Automatic Version Check Report**
  - Automatically run the Version Report on design load to highlight any version differences in the design compared to the Library

- **Additional options to:**
  - Search the report (Find)
  - Reload Parts and Components from Library
  - Enable/disable automatic check on load
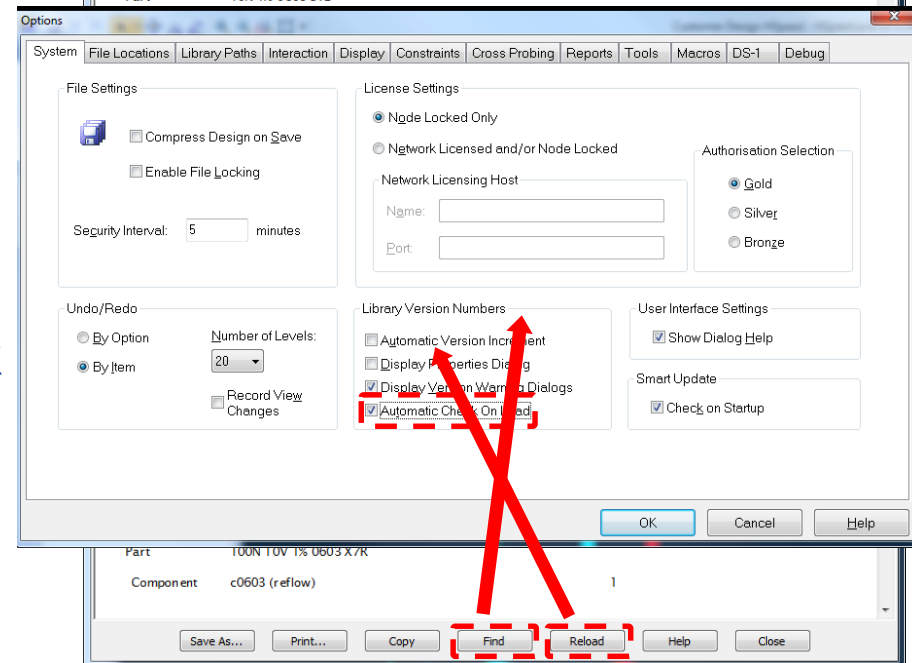
What's targeted for CADSTAR 17.0

- ## Enhanced drill oversize
  - Supporting the ability to define a different oversize value for each pad & via code

What's targeted for CADSTAR 17.0

- Optimized drilling process in order to create drill data by process

  – It is now possible to generate Drill Drawings and N.C. Drill output for adjacent layers (Min/Max Physical Layer) without having to specify a layer pair code. This is intended for manufacturers using laser drills which can only drill between adjacent layers

- Optimized drilling process - Drill Size Range
  - Any vias that contain the min/max layer will be processed during output except through-hole vias
  - The through-hole via 3-10 can cause a problem when generating the output for layer span 3-4 and 9-10 because it is a mechanical drill hole that can end up in the laser drill output! Drilling multiple times in the same hole can cause damage and should be avoided. This can be achieved by setting Drill Size Range - Maximum to the size of the largest laser drill hole

The following layer spans will be laser drille[d] so must be output using Min/Max Physical Layer[s]: 1-2, 2-3, 3-4, 9-10, 10-11, 11-12

[f]ollowing layer spans will be [mech]anically drilled so must be [outpu]t using Layer Pair Codes: [1-]10, 1-12 (Through Hole)

Post Process - Selections

N. C. Drill

Layer Span

☐ Use Layer Pair Code
☑ Equivalents   Layer Pair Code: [_____]

Min Physical Layer: 1: Top Elec
Max Physical Layer: 2: Inner1

Drill Size Range
Minimum: [_____]
Maximum: 0.3

Step and Repeat
☐ Enabled   ☐ For Each Tool

Counts
X: 0   Y: 0

☑ Plated Through
☑ Drill Optimisation
☑ Output Slotted Holes
☐ Only Output Slotted Holes

Steps
X: 0.000   Y: 0.000

What's targeted for CADSTAR 17.0

- Warn the user if backup files are opened into CADSTAR

  – !HSpeed.scm

  – !HSpeed.pcb

- This also applies to SYM, CMP or DSY files as well
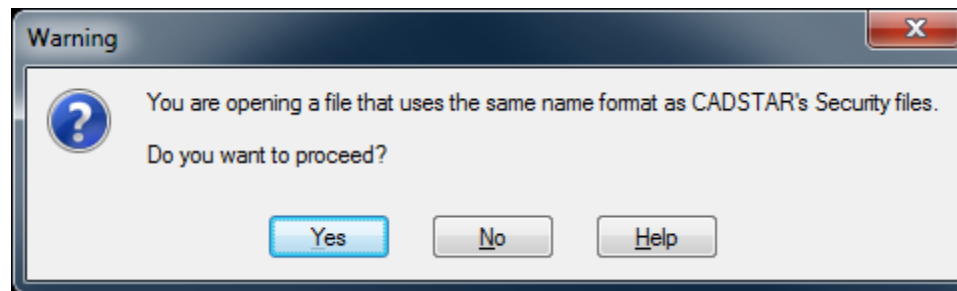
What's targeted for CADSTAR 17.0

- **Enhanced DRC unconnected pads in hatched copper**

  - If a user has a hatched copper area it was possible for a via of the same net as the copper to fall in between the hatching lines and not actually connect to the copper. CADSTAR produced correctly an error message, but it also produced (incorrect) errors for vias which did connect
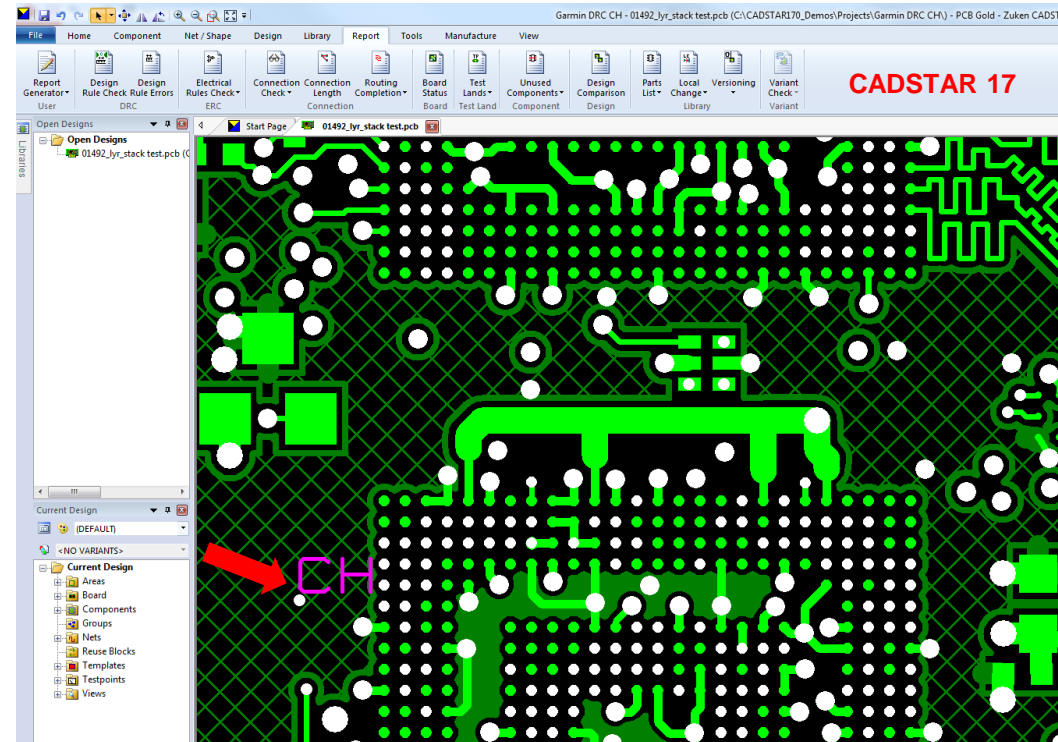
What's targeted for CADSTAR 17.0

- In Library Editor - Part Definition - Symbols - Have the first new row exist by default
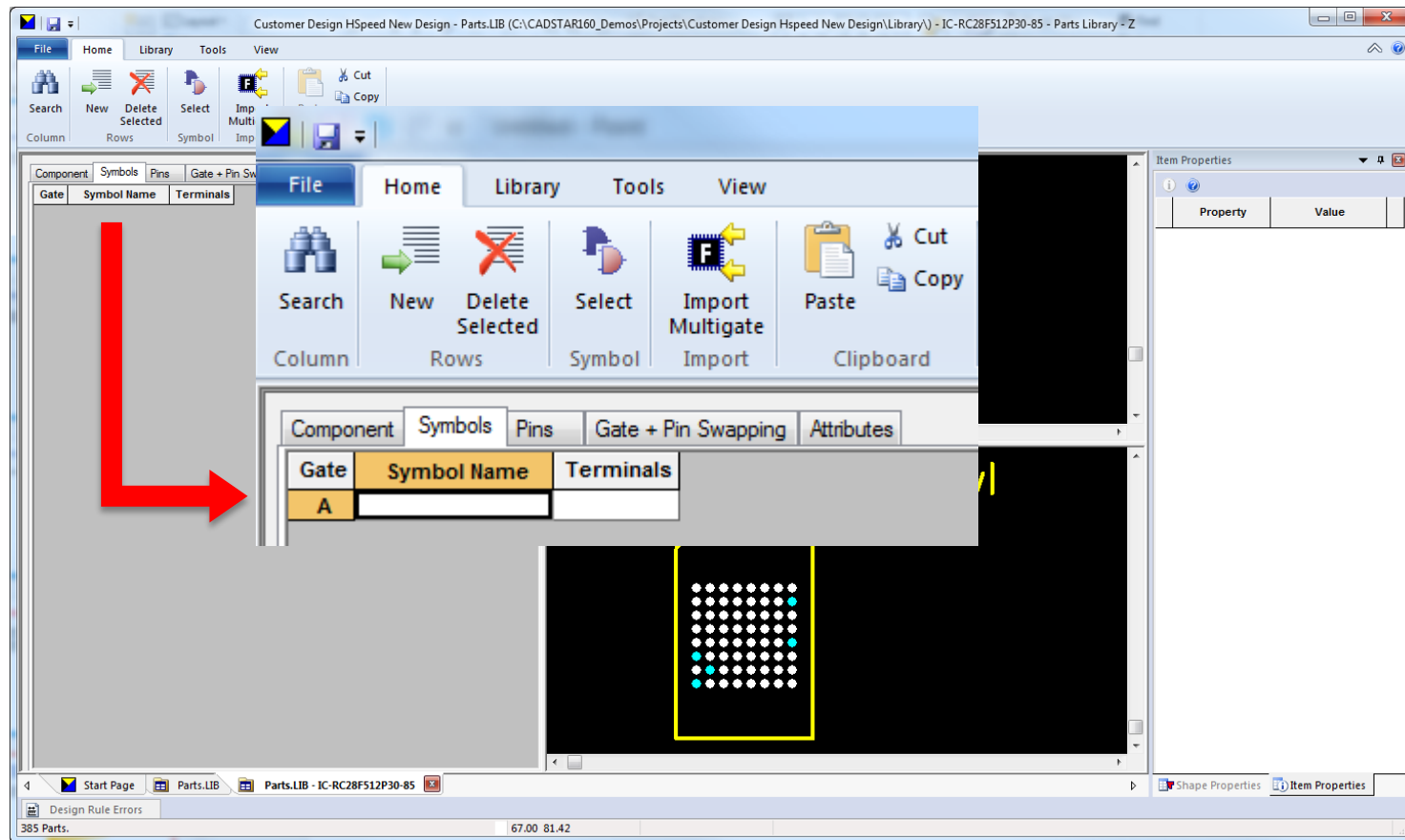
What's targeted for CADSTAR 17.0

- ## More Recent Design Files

  - The number of recent files in CADSTAR has been trebled. The start page and file menu will now show up to fifteen recent files
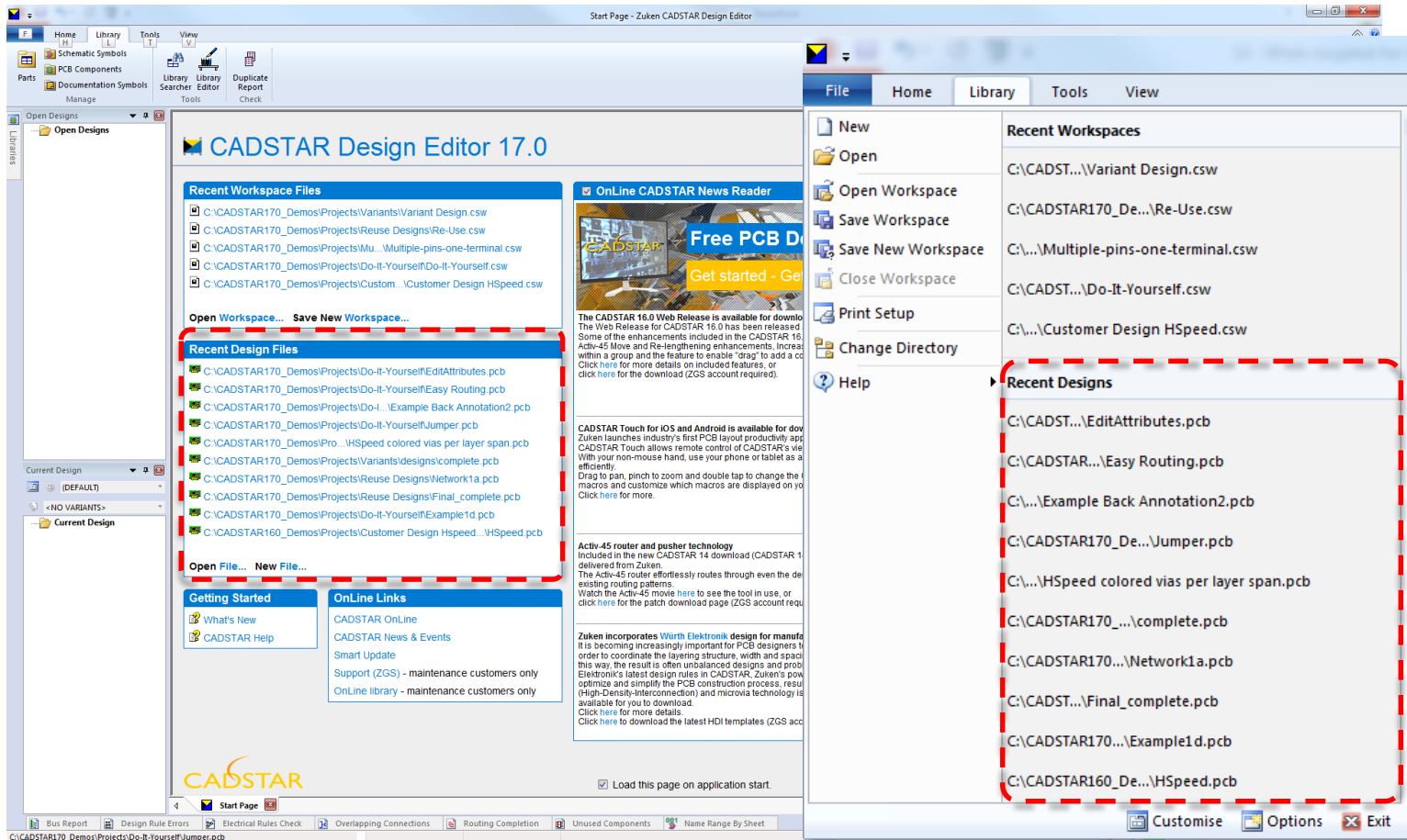
What's targeted for CADSTAR 17.0

- Output of part lists and testlands reports, option to output plain text

© Zuken
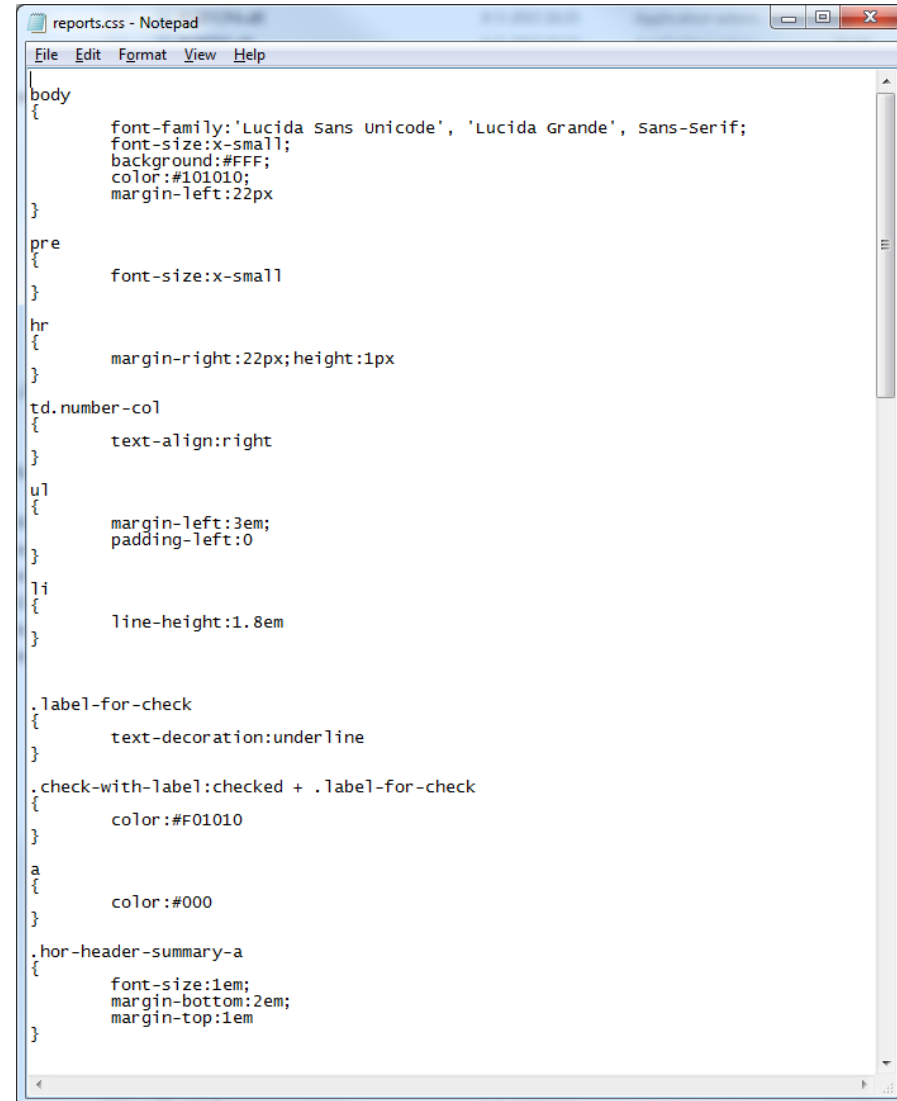
- Output of HTML reports using customized *style sheet*
  - Possible to modify text font, colors, line height etc.
  - Reports.css located in install directory/programs

What's targeted for CADSTAR 17.0

- Design Editor - Tools - Options - Constraints to become a design setting
  - Multiple users may work on the design who may be set differently
  - Setting requirements may vary from design to design
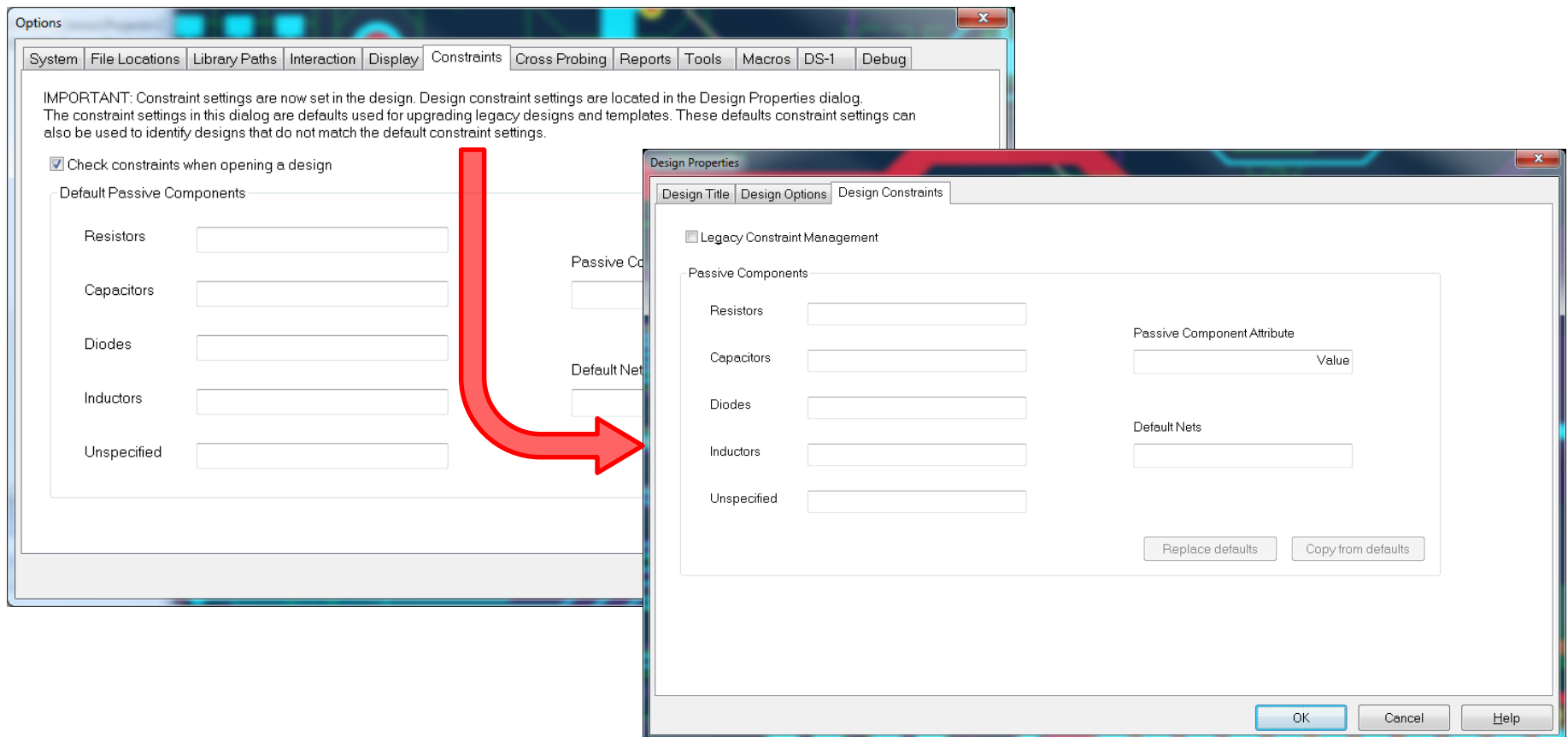
What's targeted for CADSTAR 17.0 in the Place & Route Editor

- Reporting improvements
  - Full electrical net name in crosstalk report
    - Previously net names were truncated to 20 characters
  - Notification of impedance controlled nets has been added to the Dynamic Trunk Report and the Dynamic Delay Report
  - Total E-Net length has been added to the Dynamic Lengthening Report
  - Dynamic updating of Constraints dialog during interactive lengthening
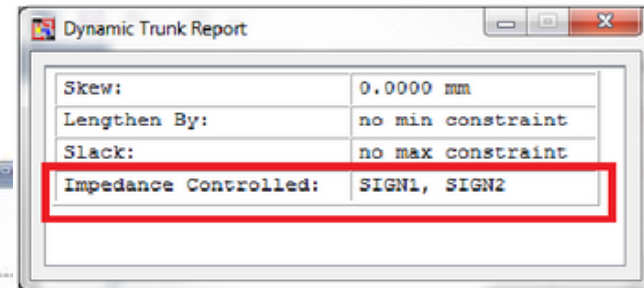
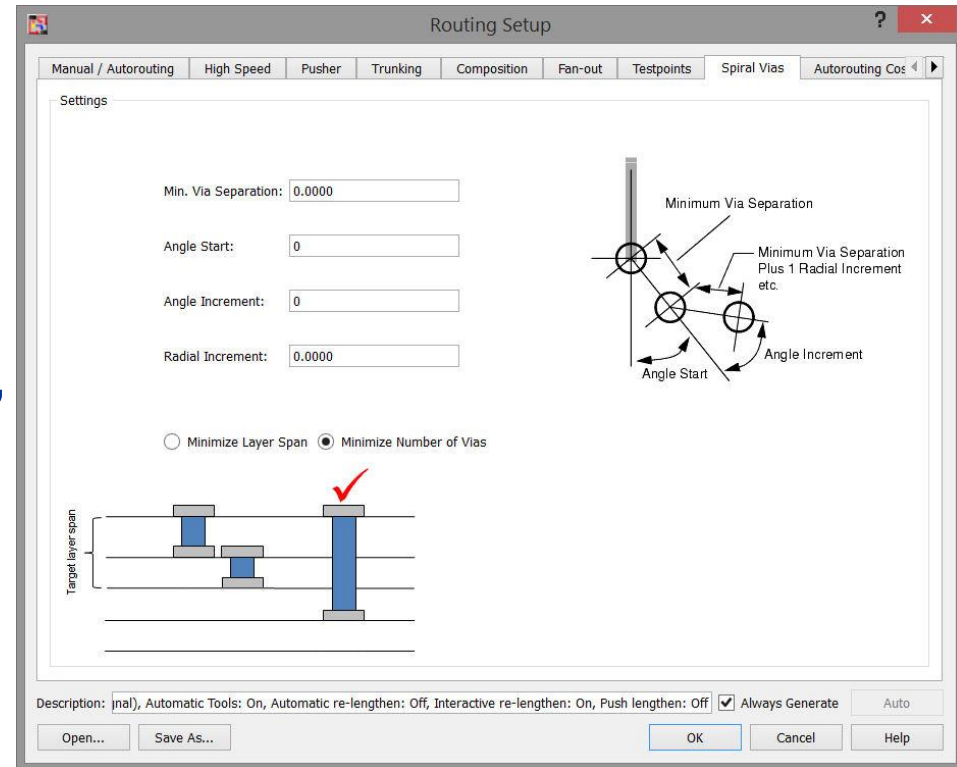- **Fan-out improvements**
  - Use minimum via span

- **Example**
  - Requested Layer Pair =10:30
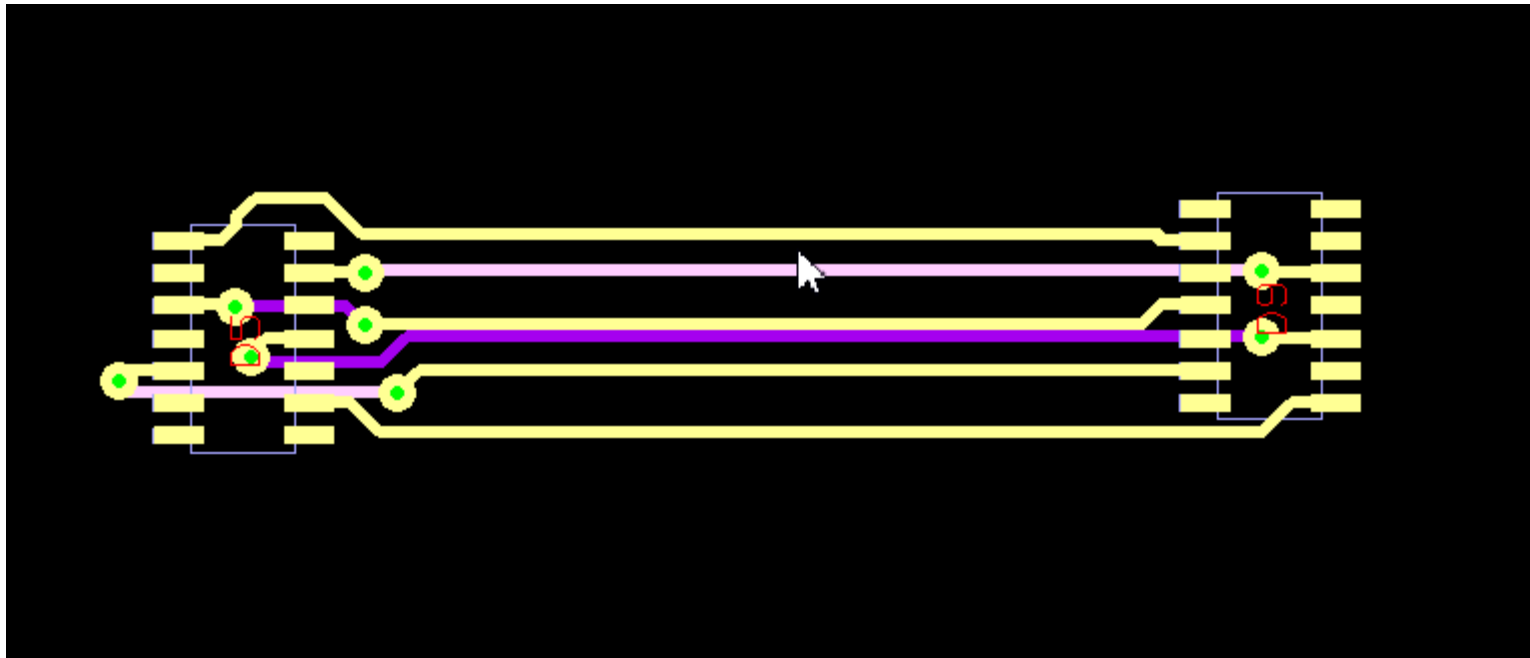 - Available Layer Pairs = 10:20, 20:30 and 10:40

- Activ-45 move track
  - Dragging tracks when in activ-45 mode
    - Activ-45 pushing
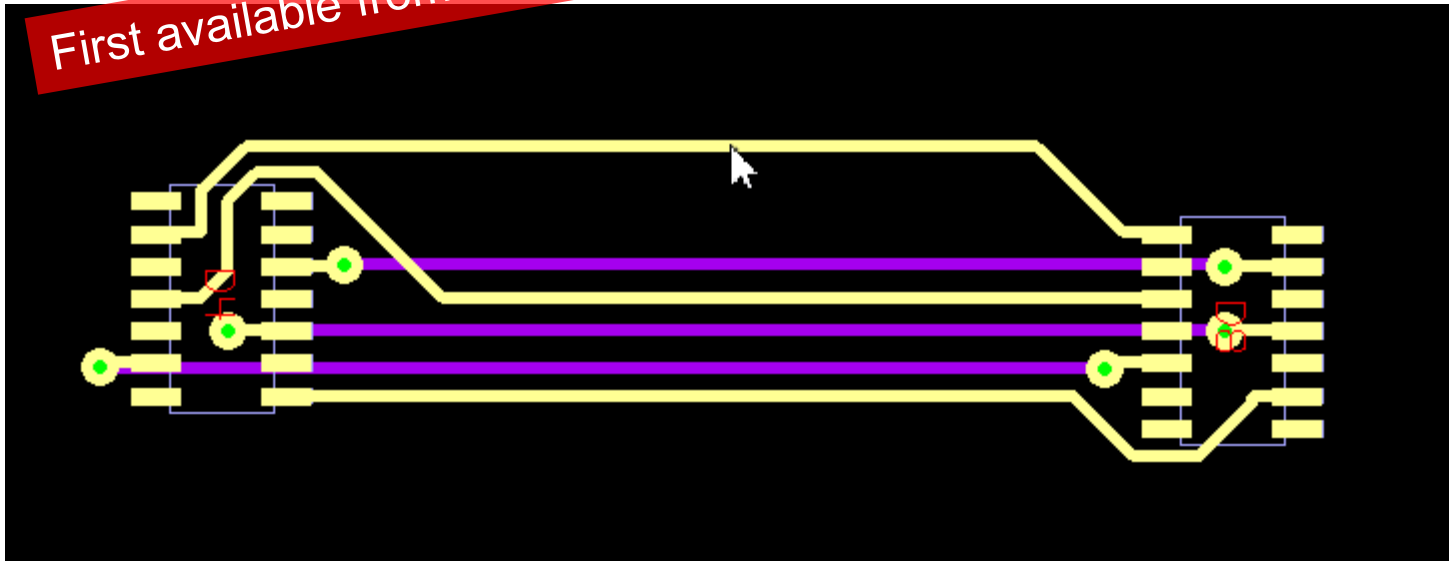   - Activ-45 tidying

First available from the CADSTAR 17.0 patch 1 (media release) on

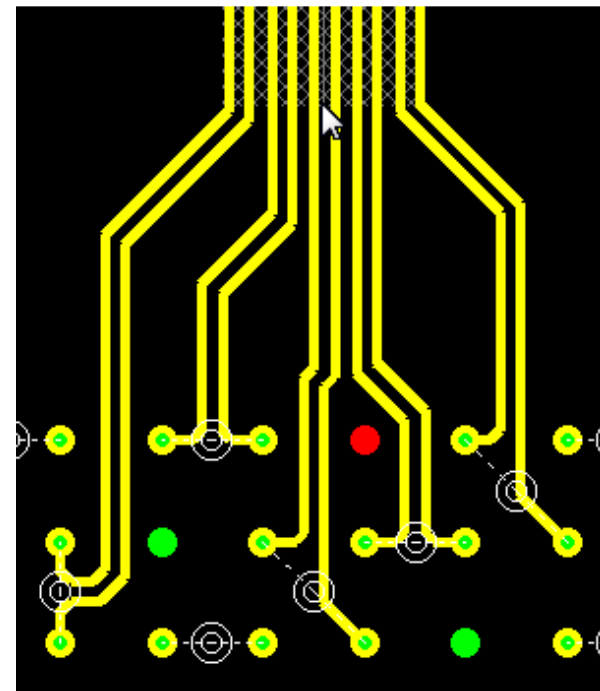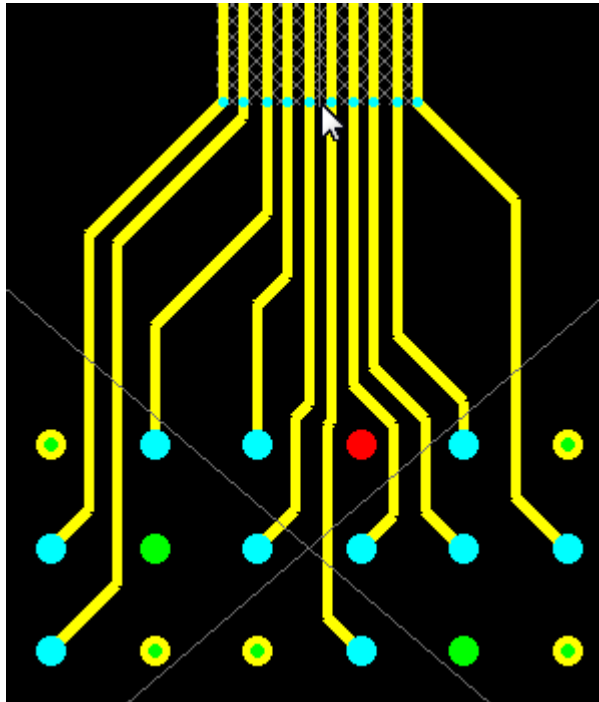# What's targeted for CADSTAR 17.0 in the Place & Route Editor

- Activ-45 lengthen move track
  - Updating lengthen when dragging tracks in activ-45 mode

First available from the CADSTAR 17.0 patch 1 (media release) on

- Trunk end router diff pair improvements
  - Better differential pair routing to the pin

What's targeted for CADSTAR 17.0 in the Place & Route Editor

- **Select Skew Groups**
  - Skew groups is now available as an item type in the Select Items dialog so that you can select all the skew groups in a design or select specific skew groups by name
  - Allows skew group specific operations such as lengthening
  - Also skew groups can now be used to perform remote select operations from the tree view
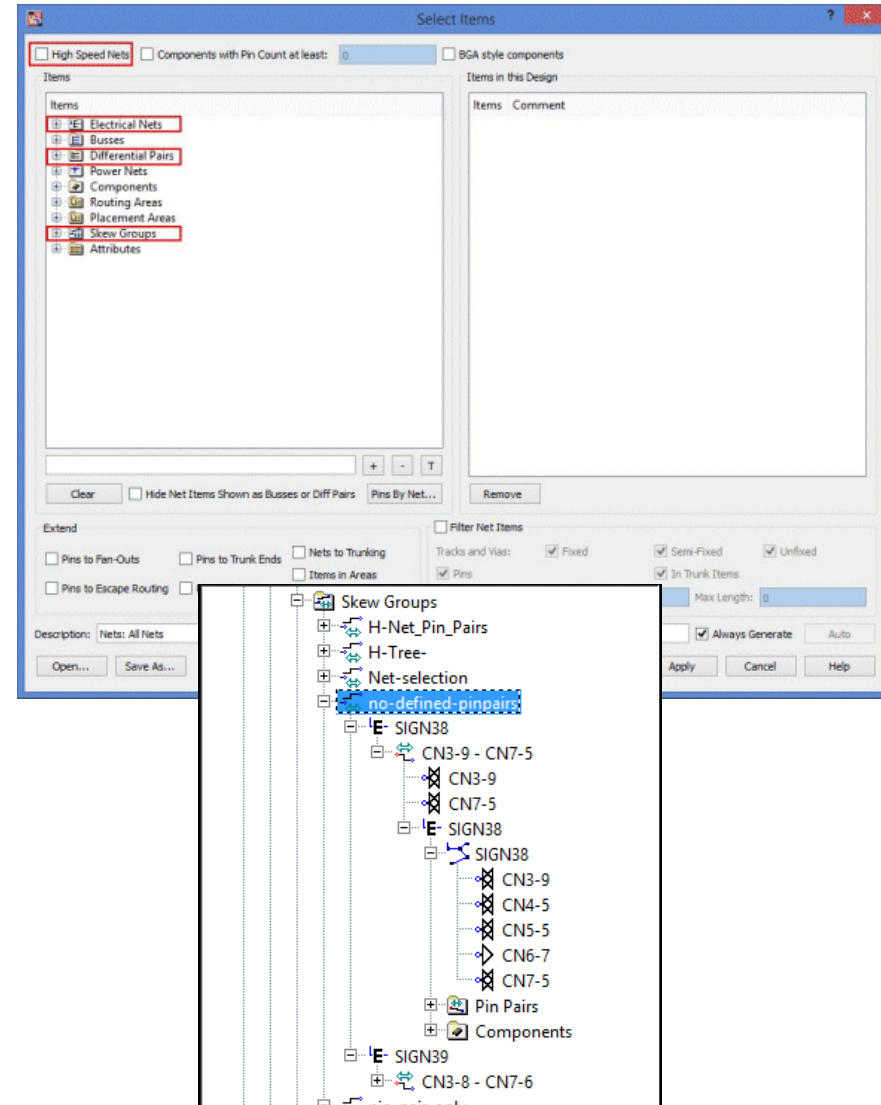
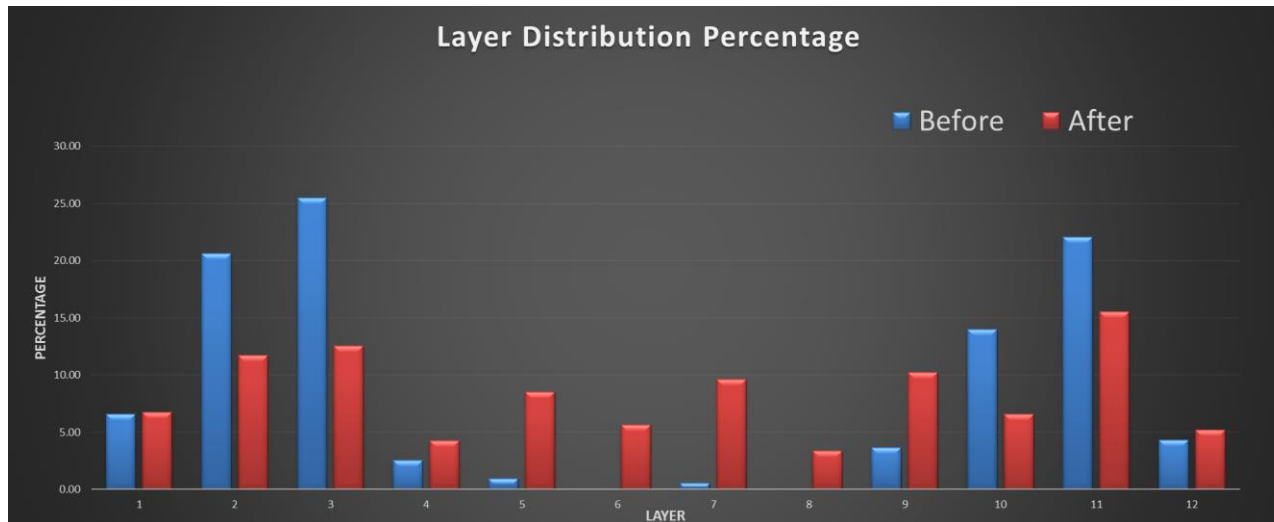# What's targeted for CADSTAR 17.0 in the Place & Route Editor

- Routing Layer Spread

  – Updates have been made to the Dragon and Classic autorouter so that it is now possible to specify if routing results are spread evenly across layers or biased towards the outer layers
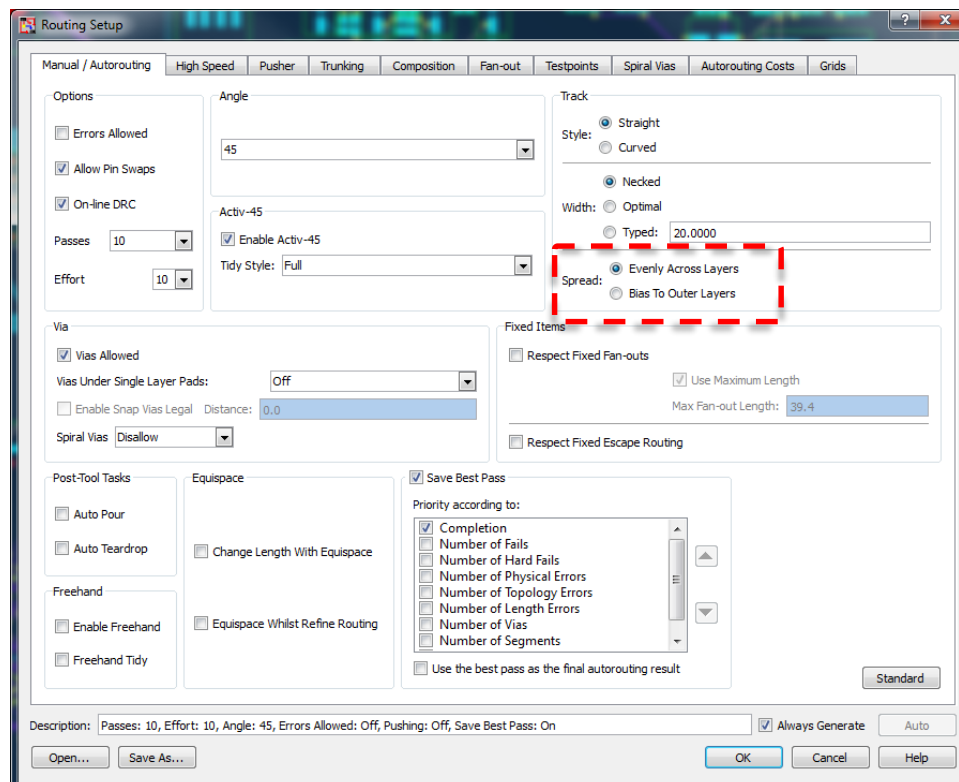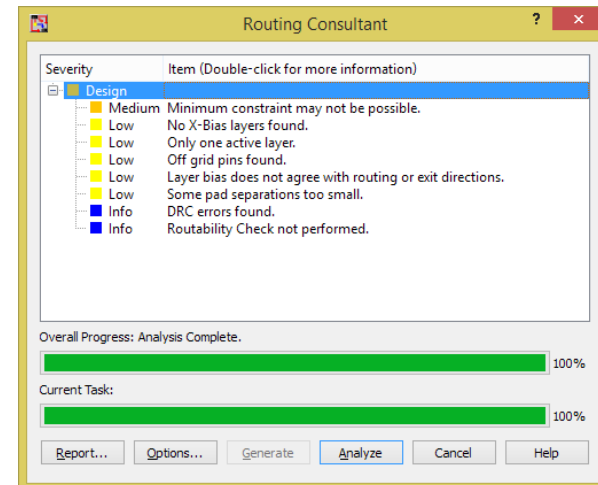
What's targeted for CADSTAR 17.0 in the Dragon Router

- **Repeatability**

- **Re-balance layer usage (routing layer spread)**
  - Don't only use outer layers when autorouting
  - Initial results suggest autorouter performance and completion improvements
    - 2x to 3x performance improvement on blind/buried via designs
 - Make option switchable

What's targeted for CADSTAR 17.0 in the Dragon Router

- Run routing consultant on selected items

  - Consultant only analyses selected items

    - On canvas

    - Items in a task in a strategy

  - Items analysed depends on check

    - Nets

    - E-Nets

    - Differential pairs

    - Items

    - Templates

    - Components

What's targeted for CADSTAR 17.0 in the Place & Route Editor

- Layer stack editor improvements
    - Support for Etch Factor has been added to the Layer Stack Editor
    - Etch factor (E.F.) is given as a ratio of h/e
   - Can be toggled on/off from the status bar
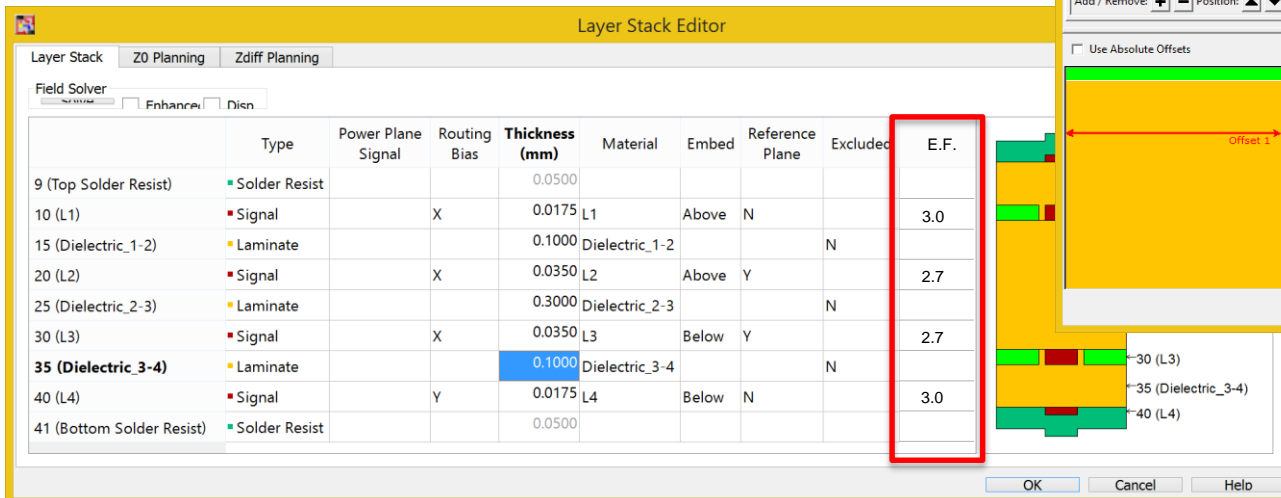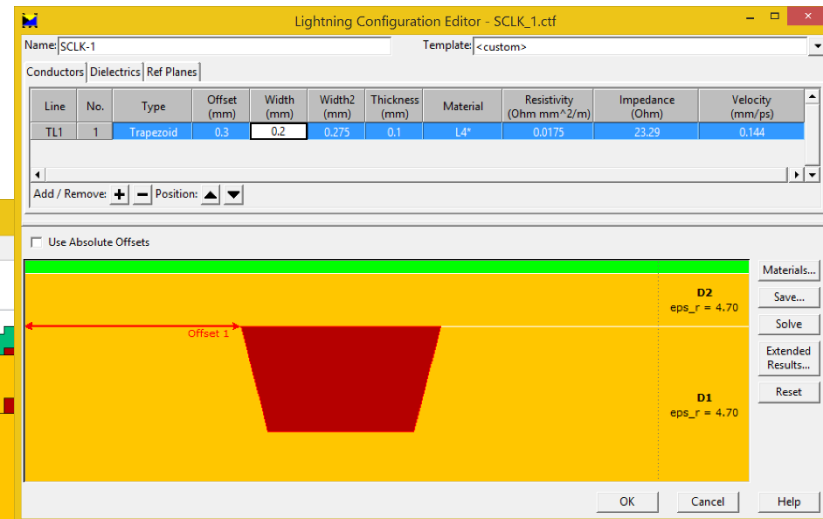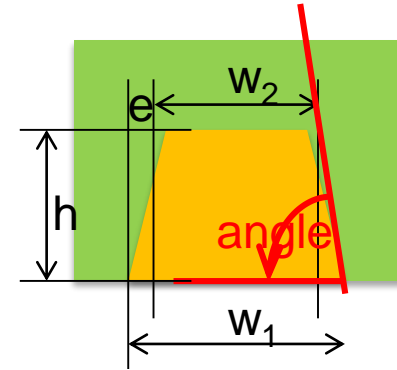
What's targeted for CADSTAR 17.0 in the Constraint Manager

- **Default to length mode**

  - First launch of CM or CB for a design, length mode is enabled by default instead of time mode

- **Constraint Manager Status Bar**

  - The settings of three values displayed in the Constraint Manager status bar can now be changed by clicking on the status bar windows

    - Clicking in the Variant window launches the Variant dialog, allowing you to choose a new variant

    - Clicking in the Etch Factor window toggles between the on and off settings

    - Clicking in the Mode window toggles between length and time modes
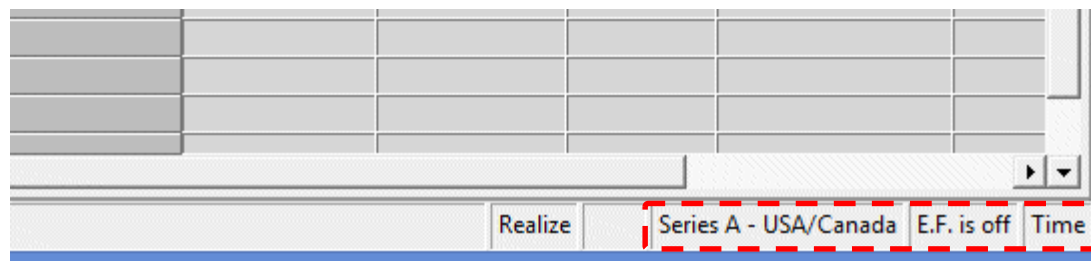
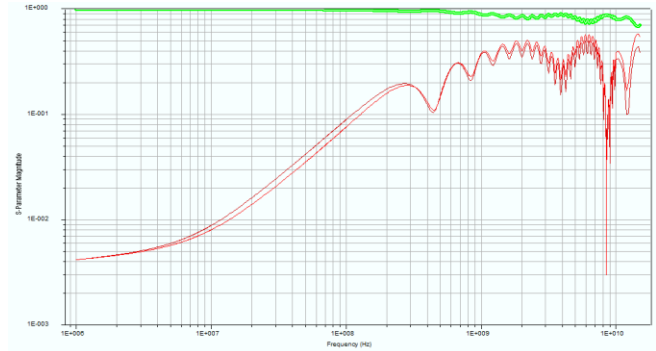# What's targeted for CADSTAR 17.0 in the Constraint Manager

- Stroke support added to Topology Editor/Viewer canvas
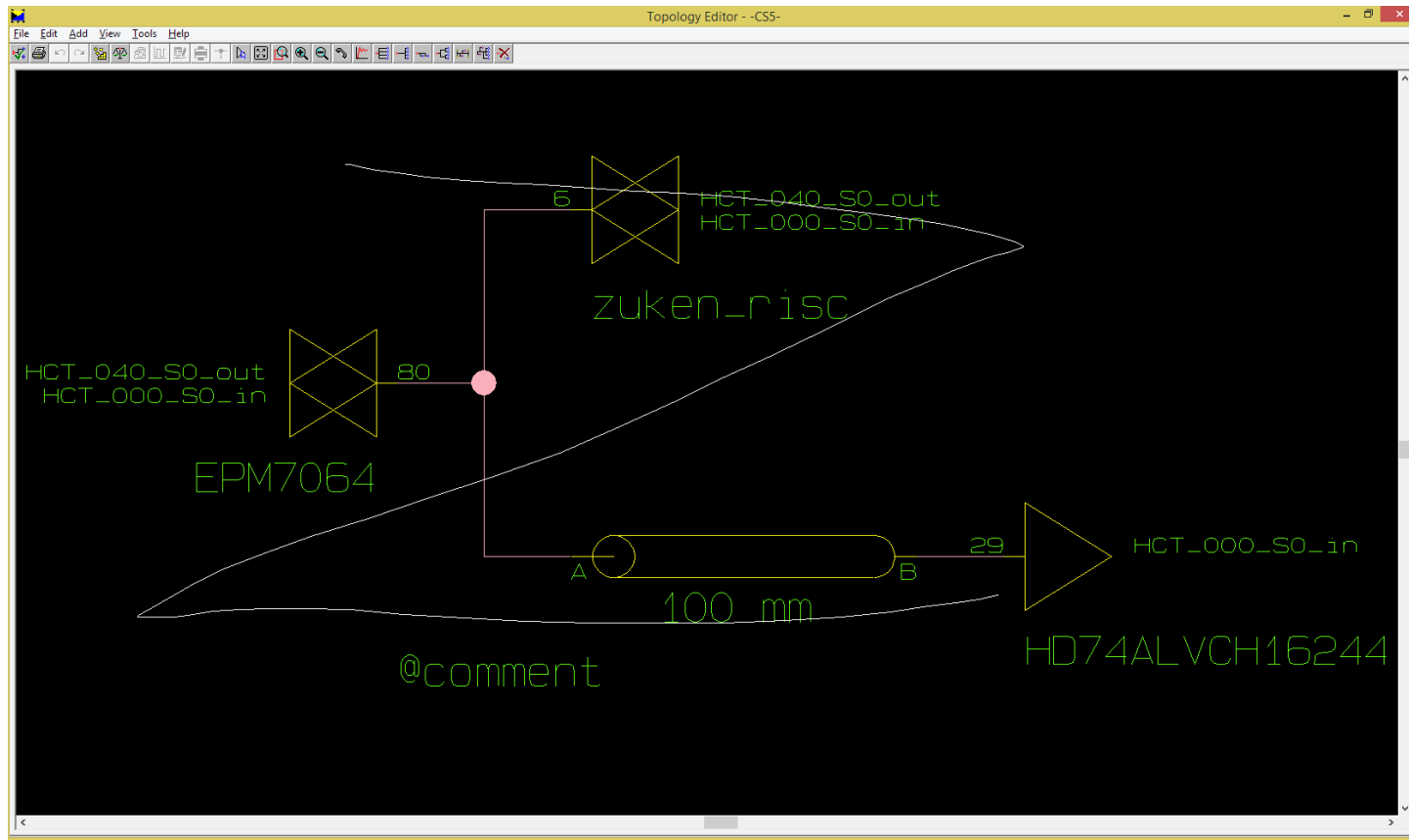
- ## S-Parameter improvements

  - Consideration of complex losses of transmission lines

  → Supporting serial channel analysis up to 15 GHz

- ## TDR model support

  - Provided TDR models (defined step functions) allow impedance profile over time like in a TDR (Time Domain Reflectometry) scope

  → Allows transmission line investigations for discontinuities along the TL (TDR Channel Analysis)

Simulation set-up:

$$C \approx \frac{4A}{Z_0 V_0}$$
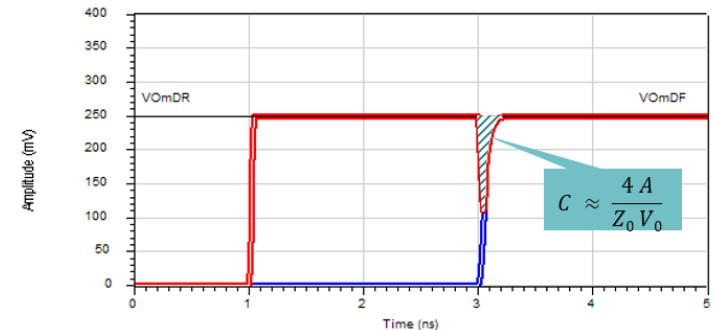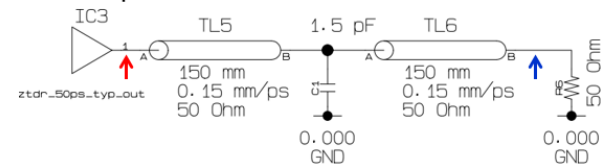
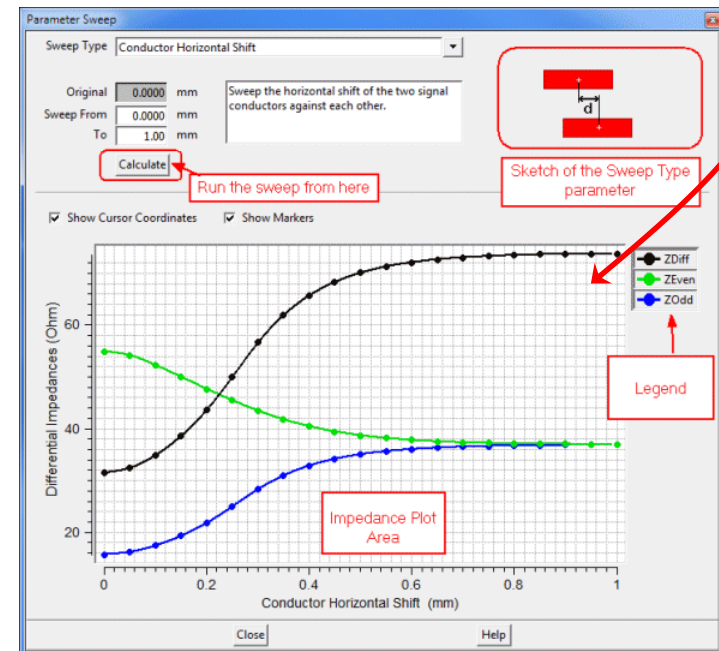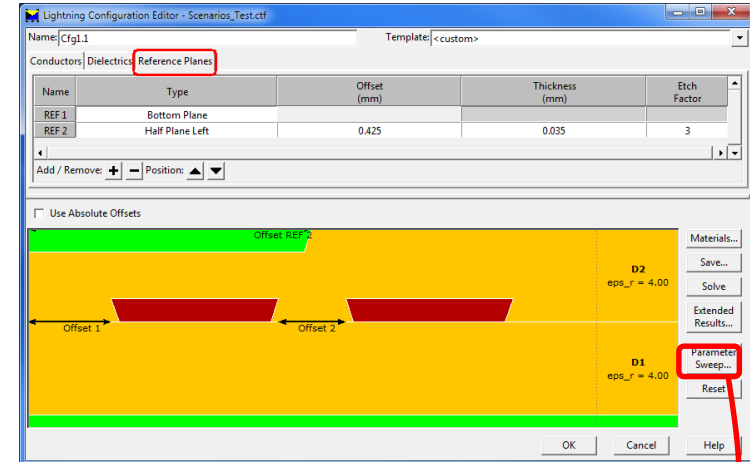# What's targeted for CADSTAR 17.0 in Signal Integrity

- **Improved Overclocking handling of Buffer driver models**
  - Automatic removal of initial delay in switching characteristics of IBIS driver models
  - → more accurate simulation results in case of poor buffer models (badly created by IC vendor)

- **Improved Package modelling**
  - Use of TL model instead of lumpe element model
  - → better timing result accuracy

Lumped RLC

TL Model
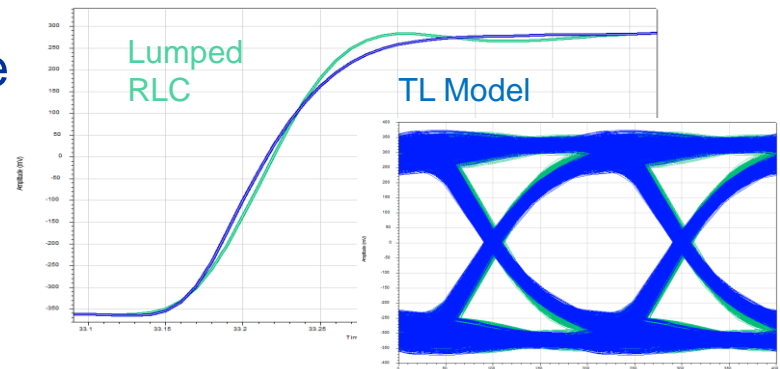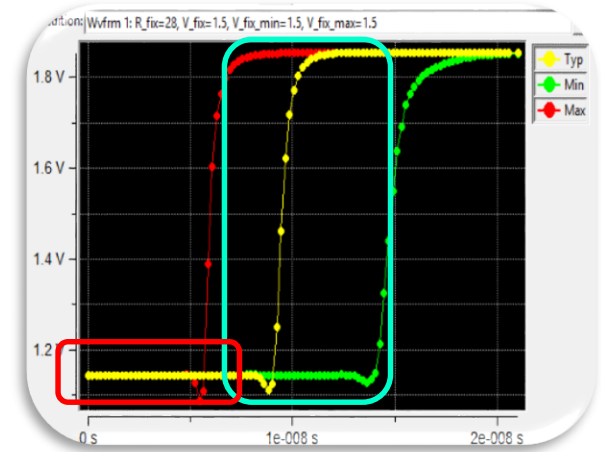
What's targeted for CADSTAR 17.0 in Signal Integrity

- **Supporting Etch Factor definition in the Configuration Editor (and CM)**

  - compatible with former trapezoidal conductor support

  - Etching for half-planes also

  - → More accurate what-if studies considering manufacturing process

- **Impedance Parameter Sweep functionality for conductors and dielectrics for:**

  - Single conductors and

  - Differential pair configurations

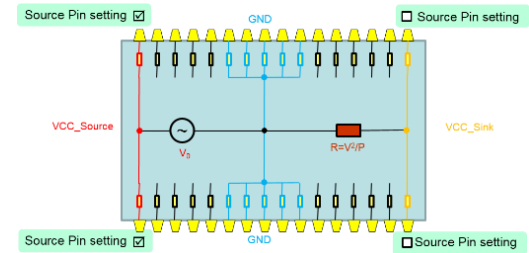 - → Allows quick overview of material or geometrical variations

- DC analysis network optimization for performance improvements
  - Up to 60 times faster network solution
    - Overall speedup depends on network complexity, average value ~15 times faster

- Pin-based DC-Source handling (source and sink in one component), rather than complete components only

→ provides rapid and detailed DC Analysis

Half-checked state of the checkbox indicates that some pins have a source setting, and some not.
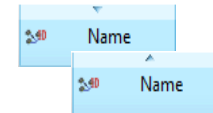
- **Usability Improvements**

  - Single-click opens editors in Classification view

    - Use of flying icons

  - Sorting always moves tables to top-row

  - Sorting indicator shown in column header

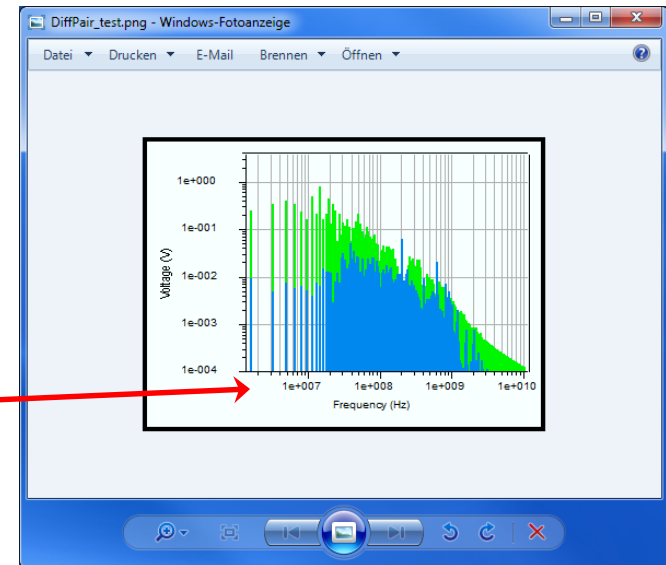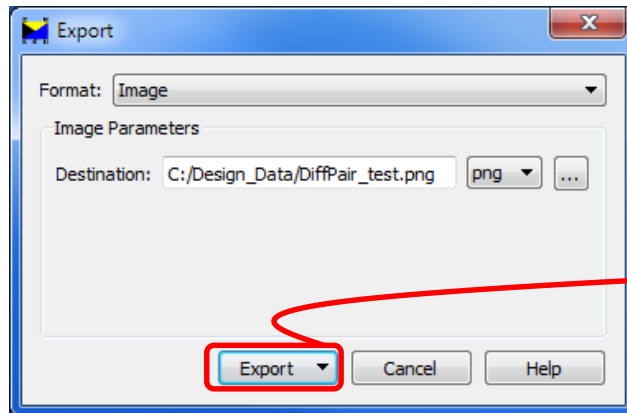 - New toolbar to raise specific windows in front easily
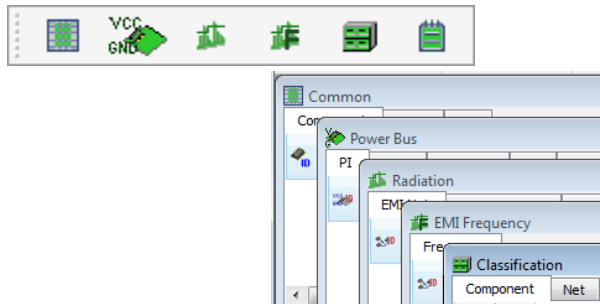
  → Reduces Setup time of EMI and PI Analysis

  → Faster turn-around in What-if studies

# What's targeted for CADSTAR 17.0 in the Power Integrity Advance

- **Image Export**
  - Now export of results directly into graphic formats possible
  - Supports documentation of simulation results
  - Supports JPG/PNG/BMP

What's targeted for CADSTAR 17.0 in the Simulation Library Manager

- Simulation Library Manager usability improvements
  - Searching and filtering improved
    - Unified with IBIS and SPICE import
      → quicker operations on large libraries

  - Support of very large IBIS files
    → allows smooth operations on very large
       IBIS files
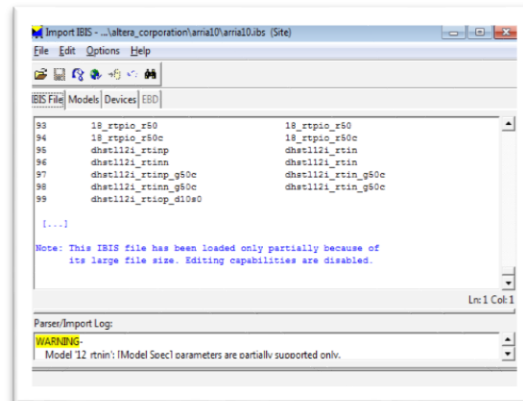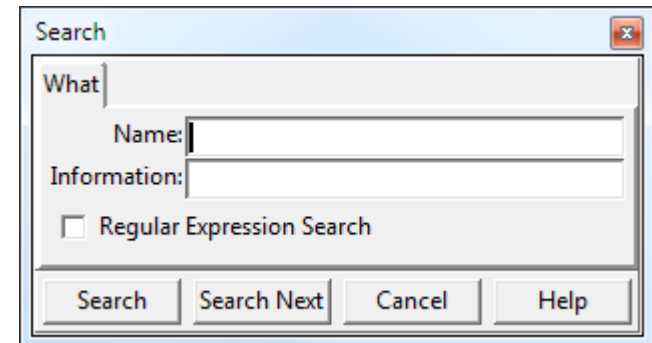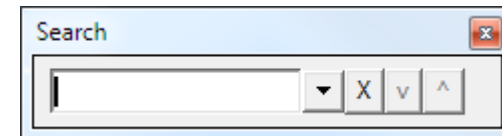
What's targeted for BML10.1

(All plans are subject to change)

Presented by Jeroen Leinders
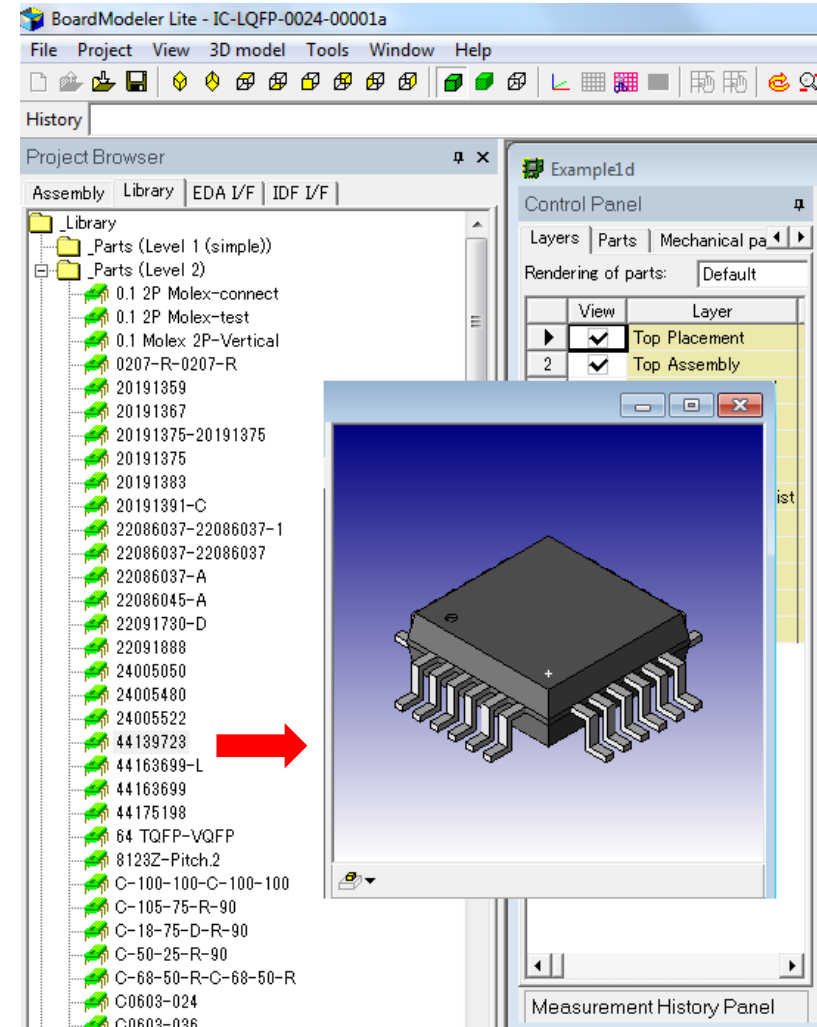
CADSTAR Distribution Manager

What's targeted for BML10.1

- Support of Unicode

  – Support of using special characters (e.g. German) when local language of Microsoft is used

- Support of drill holes within copper shapes when exporting a design to STEP Assembly format

What's targeted for BML10.1

- ## 3D preview window
  - – Pre-viewing 3D models when selecting a model from the list in the Library tab of the Project Browser

The Partner for Success