ADIVA Netlist Compare (User Guide)

Adiva Version 9.5

Document: 2/8/2021

Notice

Representations in this User Guide are meant as an overview and quick reference. Full details can be found in the On-Line manuals located at the *ADIVA Corporation* website - www.adiva.com

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Getting Started…

- **Netlist Compare** is a function that either performs automatically through a CAD Interface or manually by user selection and execution.
- **Netlist Compare** is a graphical comparison between a netlist generated from the Gerber / Drill data and one created by the CAD system
- **Netlist Compare** can also be performed using an IPC-356 file as the master CAD netlist.
- **Netlist Compare** is the principle method of attaching netnames, reference designators and component pin numbers to the graphical Gerber and Drill data. An Adiva database saved after a netlist compare process will contain this data for later reference and use in tools such as AdivaView.
- **Netlist Compare** will assume the CAD netlist as the “correct” netlist and any differences found between it and the Gerber/Drill netlist will be reported to the user – intentional differences or unintentional differences.
- All differences are shown graphically through user interaction. It is up to the user to decide if the results are intentional or not. A text report describing the differences will automatically be created through a CAD interface or can be manually generated through the Adiva Interface.
- Snapshots for browser / web display can be created of any **Netlist Compare** issues.
- CAD Interfaces allow for a graphical “link-back” of any **Netlist Compare** screen where a location marker is defined for the XY screen center of the **Netlist Compare** screen in Adiva.

Getting Started…

Netlist Compare produces five categories of results….

- **Unmatched CAD Points**
  These are points (XY locations) contained in the CAD netlist that have no matching element in the Adiva database.
  (*example:* R7 pin-1 has an XY location on the top layer per the CAD netlist but in Gerber there is no pad at that location)

- **Unmatched Adiva Points**
  These are pads that appear to be component pins (XY locations) contained in the Adiva database that have no matching element in the CAD netlist.
  (*example:* there is a surface mount pad defined in the Gerber data but there is no information in the CAD netlist regarding that pad)

- **Duplicate CAD Points**
  These are points in the CAD netlist that appear to be duplicated by their XY location.
  (*example:* R9 Pin-1 and R10 pin-1 are both listed in the CAD netlist but have exactly the same XY location on the same side of the design – effectively using the same pad)

- **Broken Nets**
  This refers to a single netname in the CAD netlist that touches multiple nets in the Adiva database.
  (*example:* the CAD netname Vcc contains points that touch two different nets in the Adiva database because of an incorrectly defined plane split which creates two separate copper areas (nets) in the Gerber database when there should have only been one area – thus one net)

- **Shorted Nets**
  This refers to multiple netnames in the CAD netlist that touch only one net in the Adiva database.
  (*example:* two traces in the Adiva database touch one another due to a piece of text etched into the design at an improper location producing one Gerber net where there should have been two)

Netlist Compare

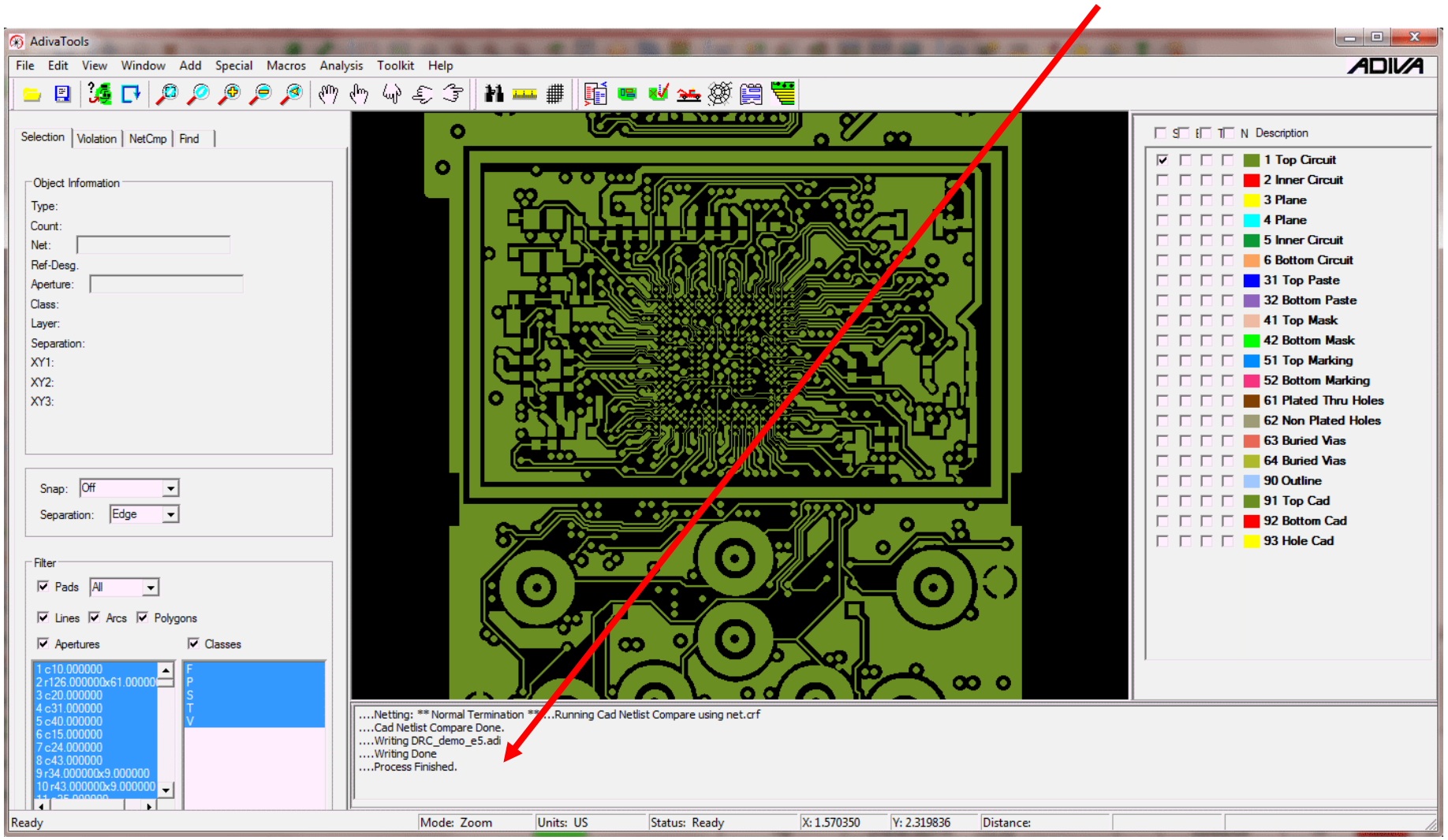
Automatic Method

This method assumes an Adiva database is built with a CAD system interface producing results of Netlist Compare automatically

If a CAD Interface is not used to build an Adiva database for analysis, see the “Manual Method” for operational details.

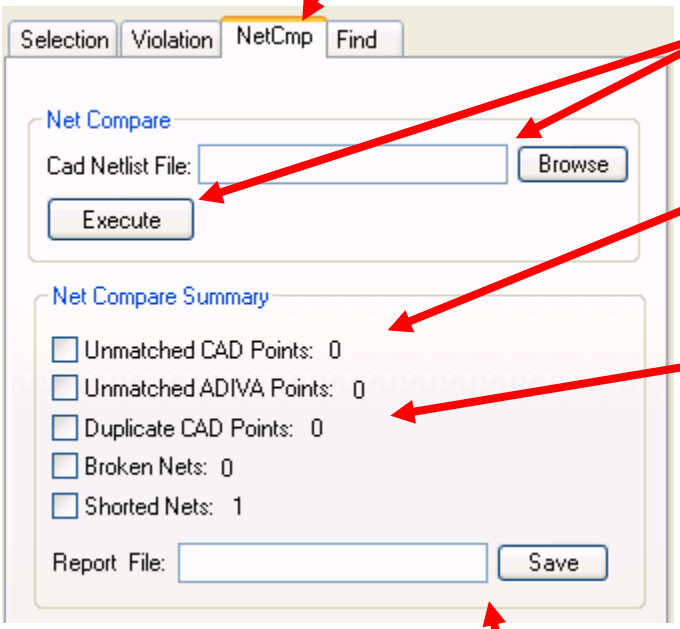
Reviewing Netlist Compare

When a CAD Interface completes, a “**Process Finished**” message will show in the Adiva message panel
A message reporting that **Netlist Compare** has completed will also be shown.



Reviewing Netlist Compare

Select the **NetCmp** tab to view results of the automatic **Netlist Compare** process



There is no need to enter any filenames or execute any process from these buttons – the **Net Compare** process is already complete if you see problem quantities listed in the summary…

- all zeros mean **Net Compare** found no issues
  there is no need to review **Net Compare** any further
- no values mean **Net Compare** did not run.

This is a summary of the **Netlist Compare** process listing the quantities of issues found

Check ON any of the boxes for a particular issue to view further details and find the problem.
Only one box can be checked ON at a time

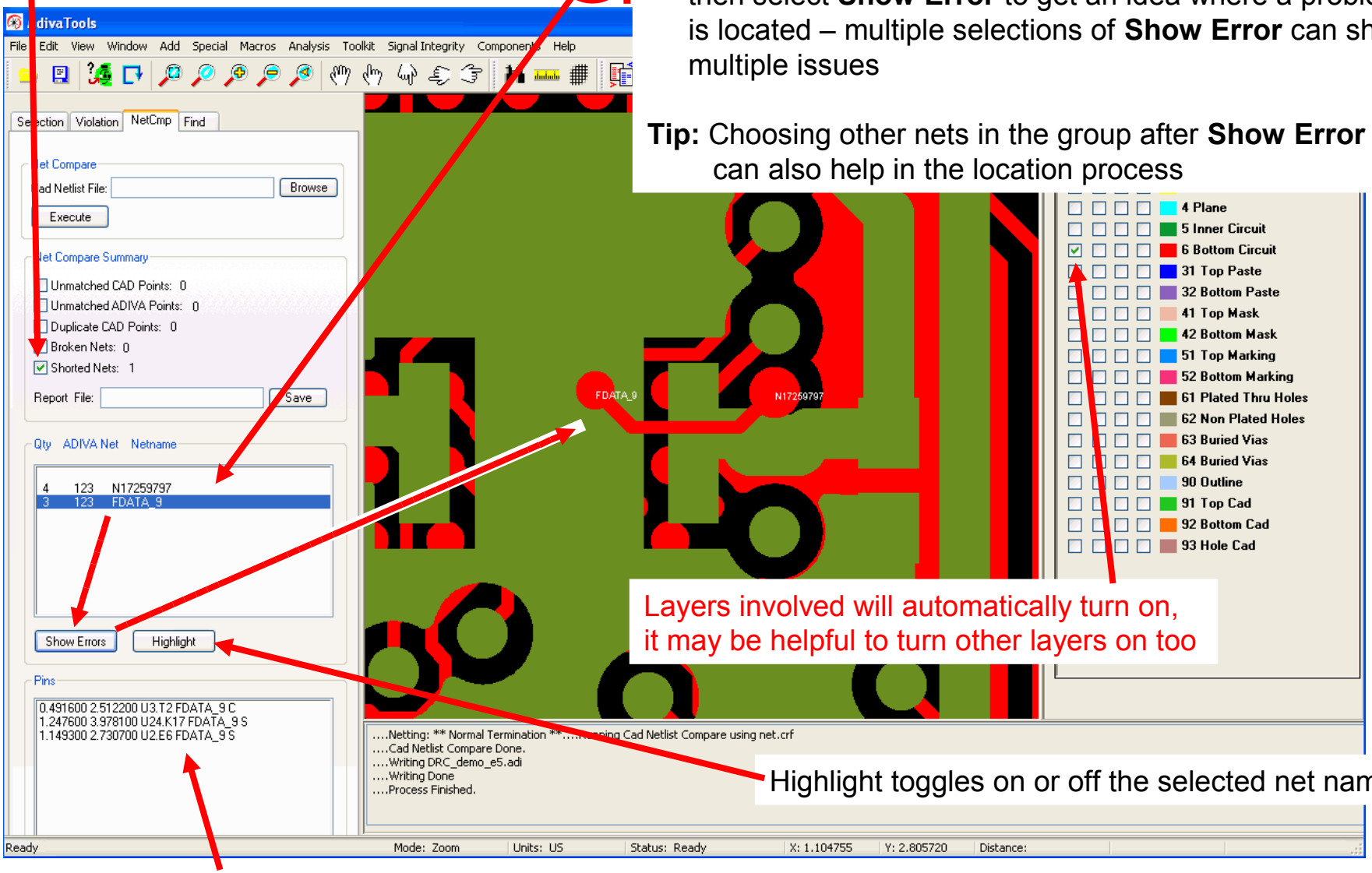
Enter a filename and select **Save** to save this summary report in a text file.
If a single filename is entered, the file will be placed in the DRC_jobname project directory.

Reviewing Netlist Compare

1 Choose a Summary item to review

2 Scroll to review problems and select one to see
– then select **Show Error** to get an idea where a problem is located – multiple selections of **Show Error** can show multiple issues

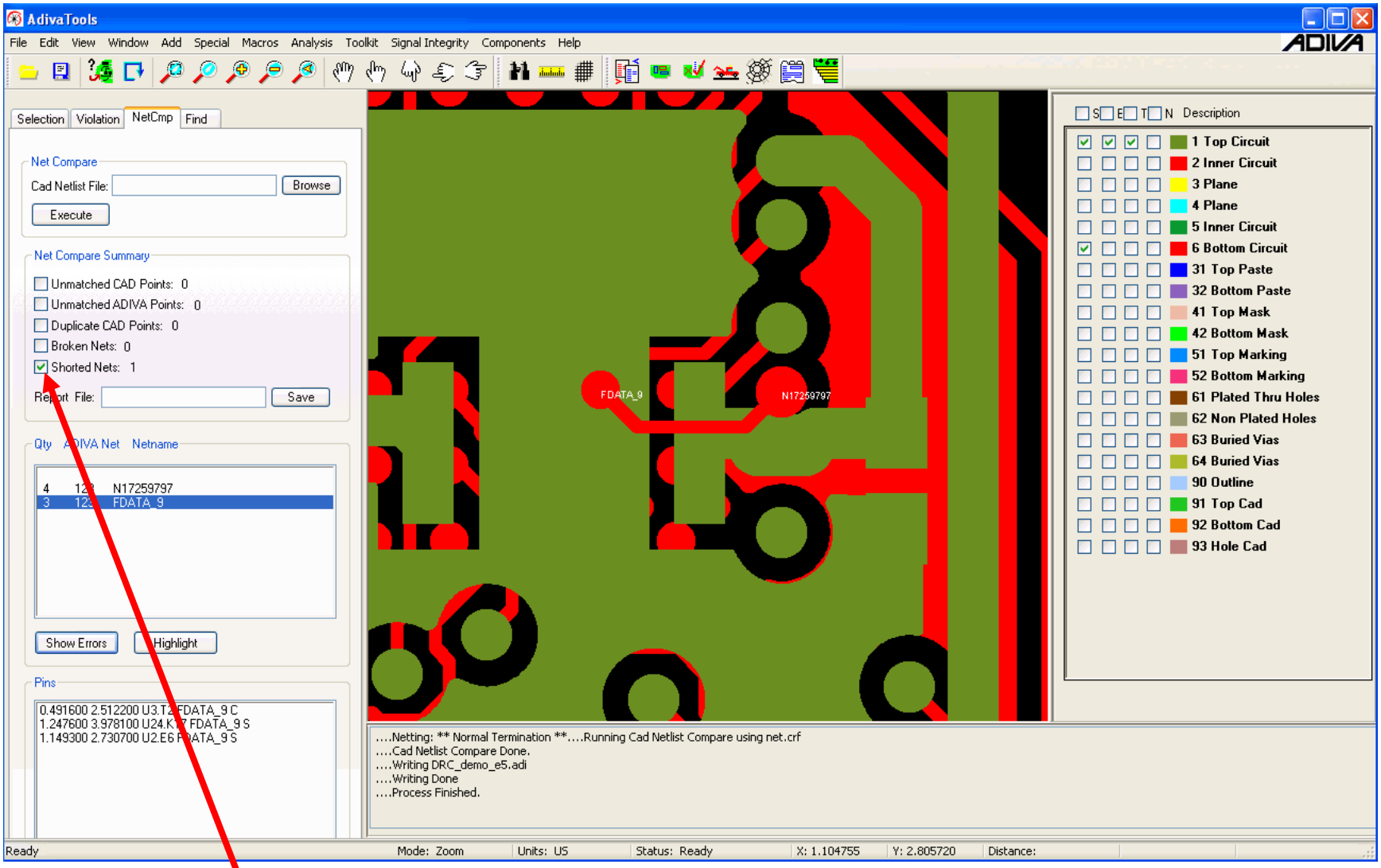
Tip: Choosing other nets in the group after **Show Error** can also help in the location process



Layers involved will automatically turn on, it may be helpful to turn other layers on too

Highlight toggles on or off the selected net name

Select a pin to bulls-eye its location



Uncheck all Summary items to end review of a particular issue or “exit” **Netlist Compare**

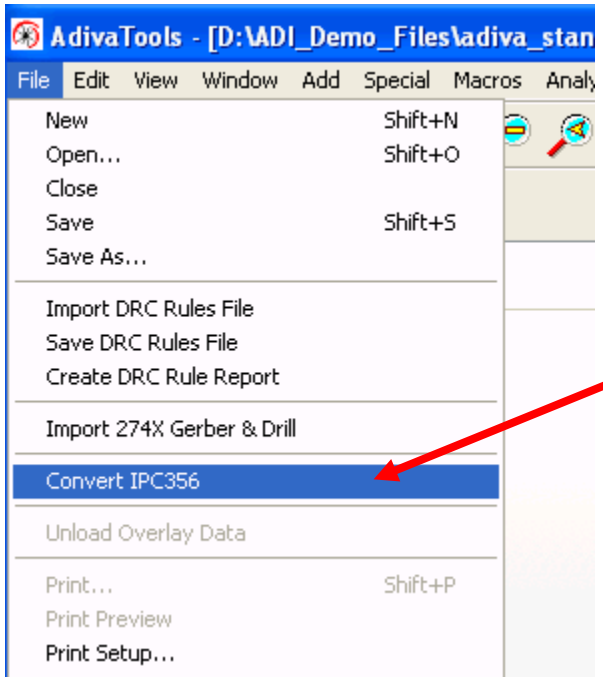
Netlist Compare

Manual Method

This method assumes an Adiva database is built without a CAD system interface forcing a user to enter a netlist file (usually IPC-356) to perform the Netlist Compare function.

If a CAD Interface is used to build an Adiva database for analysis, see the “Automatic Method” for operational details.

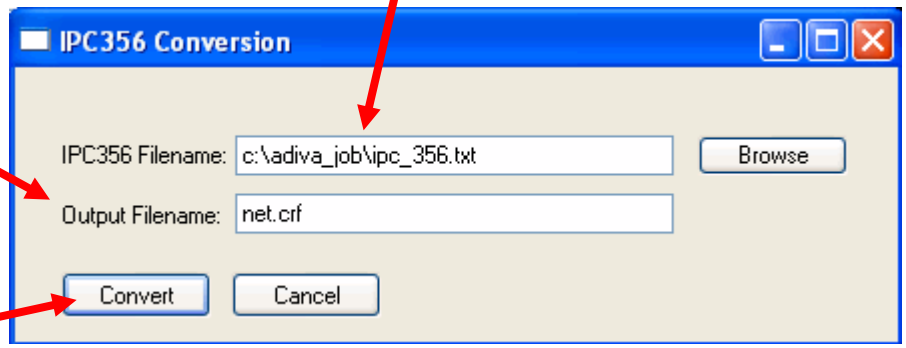
Converting an IPC-356 Netlist



An IPC-356 file needs to be converted into a generic format for Adiva to read for Netlist Compare.

Select the **Convert IPC356** menu pick under Adiva's **File** menu.

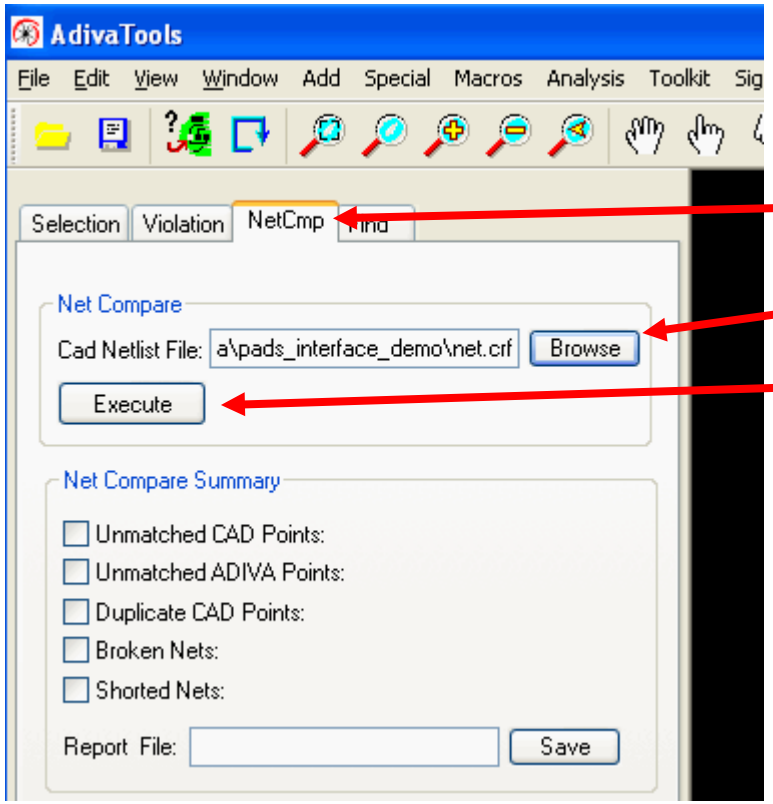
Locate and enter the name of the IPC file



Provide a name for the Adiva generic formatted net list – Adiva typically refers to the file as the "net.crf" file

Select **Convert** to make the conversion happen – file is stored in the Adiva DRC_jobname directory

Running Netlist Compare

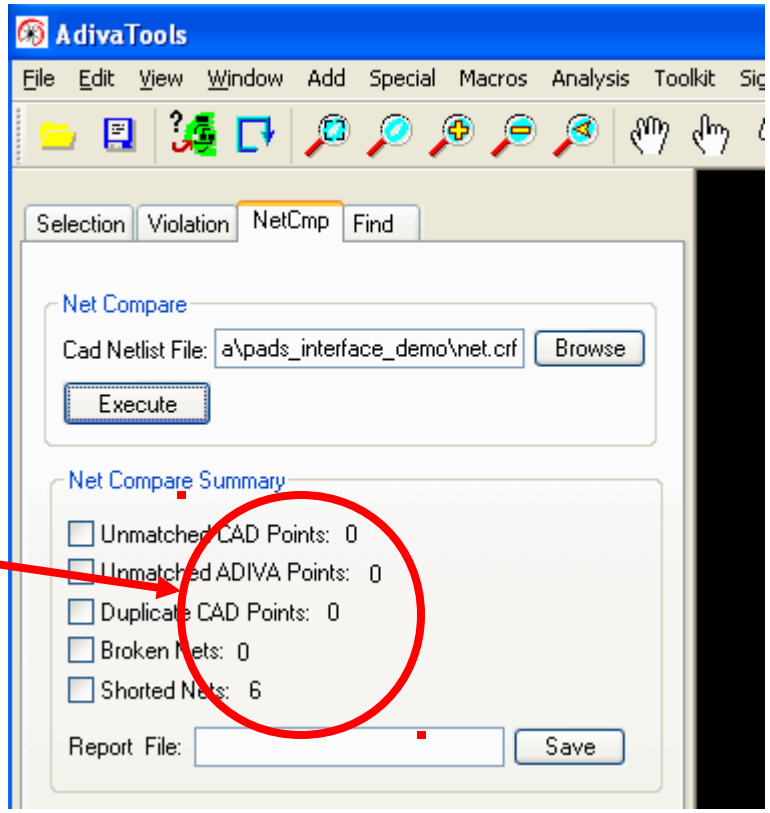


Select the **NetCmp** tab

Browse and select the “net.crf” file recently created

Execute the **Netlist Compare** Routine

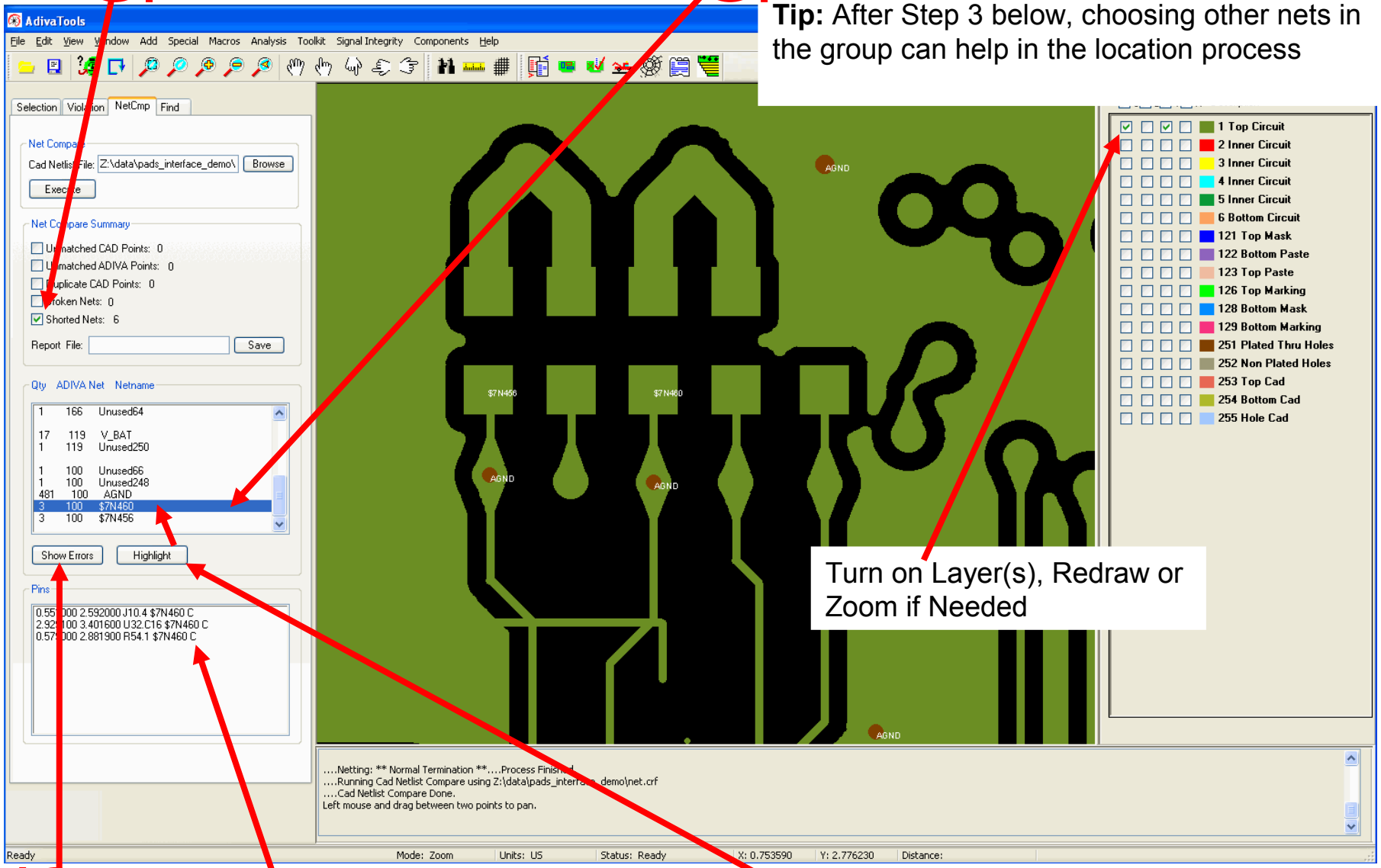
When **Netlist Compare** completes, a summary will appear describing any issues



1 Choose the Summary Item to review

2 Scroll to review problems and select one to see

Tip: After Step 3 below, choosing other nets in the group can help in the location process



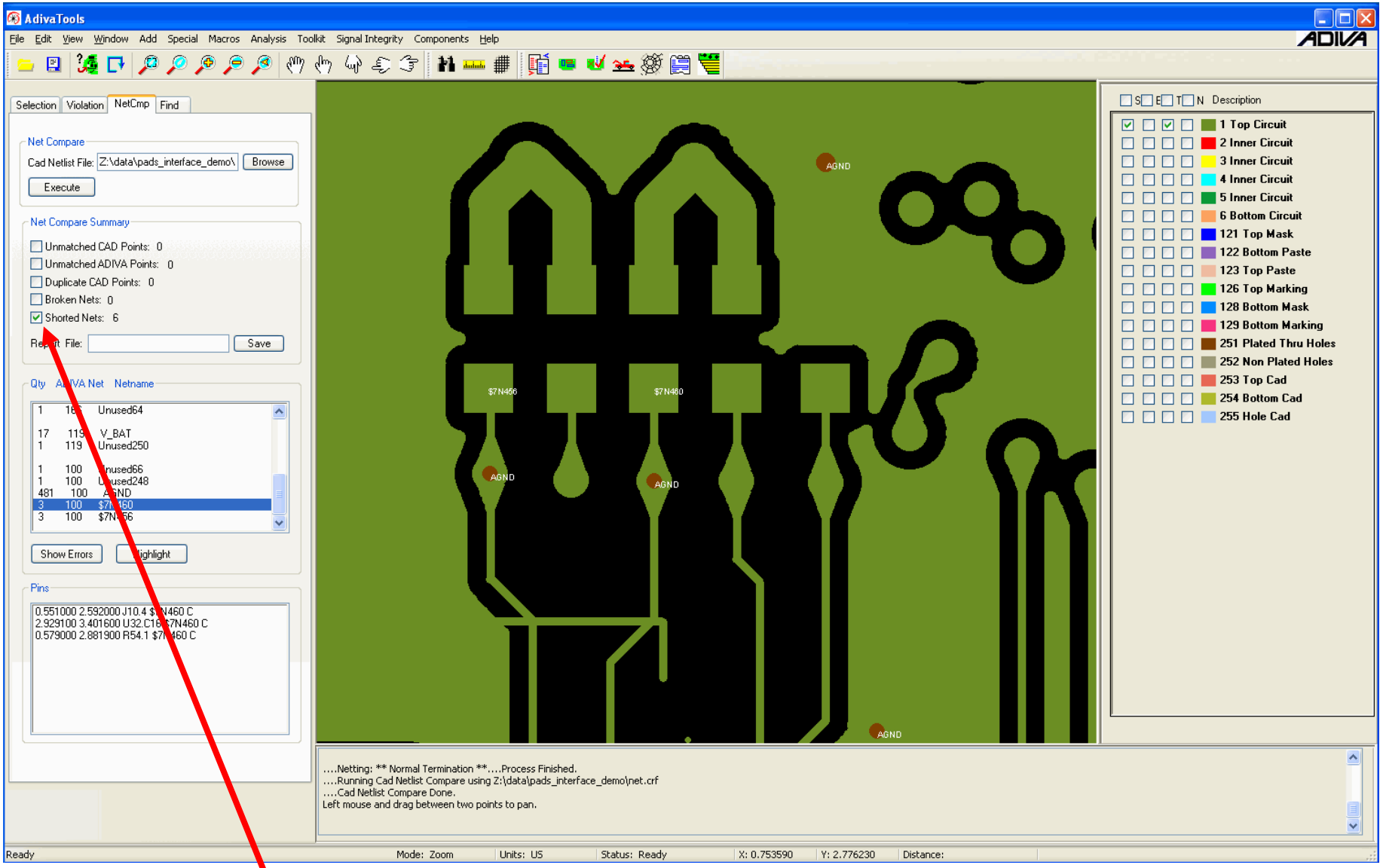
Turn on Layer(s), Redraw or Zoom if Needed

3

Select a pin to bulls-eye its location

Highlight toggles on or off the selected net name

Select **Show Errors** to get idea where problem is located
- multiple selections of **Show Errors** can show multiple issues



Uncheck all Summary items to end review of a particular issue or “exit” **Netlist Compare**

END
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