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Huntron Workstation 4.1

# User's Manual



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# Main Window

This window encompasses the entire program. The title is Huntron Workstation followed by a dash then the file path of the open board file.

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## File Menu

The File menu allows creation, opening and repair of board database files. It also allows exiting the program.

### New

The Board dialog is displayed to create a new board. Default filename is set to boardname-revision.mdb and path to My Documents\Huntron\Boards.

### Open

The standard Windows Open File dialog is displayed to open an existing board file. Board Database \*.MDB and All Files \*.\* are available as selectable file types. If the Board Unit of Measure does not match the Tools Options General Unit Of Measure (UOM), prompts with a message to update the board file or Options UOM.

### Save As

Displays the standard Windows Save As File dialog to save the board file with another name. This copies the current board database to a file with the new name. Changes the active database to the new file and only stores changes to the new file. Overwrites an existing file, if one is selected, after a warning.

### Save Copy

Displays the standard Windows Save As File dialog to save the board file with another name. This copies the current board database to a file with the new name. Keeps the current database active. Overwrites an existing file, if one is selected, after a warning.

### Close

Closes the current board file.

## Delete

The standard Windows Open File dialog is displayed to select the file to delete. Board Database \*.MDB and All Files \*.\* are available as selectable file types. A file must be open to delete.

## Convert

Displays the Convert Wizard dialogs to convert boards from a previous Workstation for Windows System database.

### ***Select System to Convert Dialog***

Displays a Windows File Open dialog to select the System file to convert boards from. The default for this path is c:\winhunt and filename default is system.dbf.

### ***System and Board to Convert Dialog***

Displays a dialog that lists the systems in the System file. The systems are listed in a list control at the top of the dialog that allows a single selection. The boards in the system are listed in a list control at the bottom of the dialog by Name and Revision. The Next button proceeds to the Board File Path Dialog. The Previous button returns to the Source System Dialog.

### ***Select Name of New Board File Dialog***

Display a Windows File Save As dialog for the filename of the board to be created. The default path is My Documents\Huntron\Boards. The filename is created from the board name-revision. After clicking Save, prompts with a window asking if the test was created using an Access Prober.

### ***Status Dialog***

Displays a dialog to display the status of the board conversion. The status includes Board, Section Component and Pin. A cancel button is available.

### ***Conversion Complete***

Display a conversion complete message

## Import

Imports a board from a PCB layout CAD file. Runs HAF Import wizard to create the HAF File. Adds sequences to the currently loaded board database..

## Repair

The standard Windows Open File dialog is displayed to open an existing board file. The board file is repaired and compacted. Repair is only active when no board file is open.

## Recent Files

Displays a sub menu that list the last 5 board files opened.

Sub menu looks like:

My Documents\Huntron\Boards\Board1.mdb  
My Documents\Huntron\Boards\Board2.mdb  
My Documents\Huntron\Boards\Board3.mdb  
My Documents\Huntron\Boards\Board4.mdb  
My Documents\HuntronBoards\Board5.mdb

## Exit

Exits the program.

---

# Edit Menu

The Edit menu allows modification of the tree structure of the board test.

## Add New

Shortcut: Ctrl+N

Displays a dialog to add an item to the Tree pane grid. Creates a new row at the bottom of the grid. Disabled for Pin and Scan tabs. Sets the Order Number field to number of grid rows + 1.

## Edit

Shortcut: Ctrl+E

Displays a dialog to edit the currently selected Tree pane grid item (Sequence, Component, Net, Pin range). Disabled for the Scan Tab.

## Delete

Shortcut: Ctrl+D

Deletes the currently selected item on the Tree pane grid. A warning message is displayed before deleting. Disabled for Pin tab. When multiple Sequences, Components, Ranges or Scans are selected, all of the selected ones will be deleted.

## Insert

Shortcut: Ctrl+I

Displays a dialog to insert an item to the currently selected Tree pane grid, The item is added above the currently selected item. Sets the Order Number to the current order number and increments the following items Order Numbers. Disabled when Sequence or Component/Net and Sort Order is not Order Number Ascending or Descending. Disabled when Range and Sort Order is not Range Number Ascending or Descending. Disabled for Pin and Scan tabs.

## Repeat

Shortcut: Ctrl+R

Adds an item at the bottom of the currently selected Tree pane grid that is the same as the current item except the name is left blank. Disabled for Pin, Range and Scan tabs

## Build

Shortcut: Ctrl+B

Adds an item at the bottom of the currently selected Tree pane grid that is the same as the current item except the name ends with the number or letter incremented. Letter incrementing stops at Z. Disabled for Pin, Range and Scan tabs. If the new name exists an error is displayed. If name does not end in letter or digit an error is displayed.

## Copy

Copies the current item on the Tree Pane grid to memory. Disabled for Pin and Scan tabs. Copy Range does not copy signatures. When multiple Sequences, Components or Ranges are selected, all of the selected ones will be copied.

## Paste

Pastes the item from memory to the Tree Pane grid. Disabled for Pin and Scan tabs. If name exists, prefix name with “Copy Of “. If “Copy Of” already exists adds or increments “(2)” between “Copy” and “Of”.

## Cut

Shortcut: Ctrl+X

Copies the current item on the Tree Pane grid to memory. Then deletes the current item from the grid. Disabled for Pin and Scan tabs. A warning message is displayed before deleting. When multiple Sequences, Components or Ranges are selected, all of the selected ones will be cut.

## Delete Scans

Delete all of the scans and signatures for the current item.

A warning message is displayed before deleting. Disabled for Pin, Range, and Scan tabs.

## Edit Board

Displays the Board dialog to edit the board.

---

## View Menu

The View menu allows control of the toolbars and reports.



## Tool Bars

### ***File***

A checked menu item that turns the display of the File Toolbar on and off.

### ***Edit***

A checked menu item that turns the display of the Edit Toolbar on and off.

### ***Actions***

A checked menu item that turns the display of the Actions Toolbar on and off.

### ***Next/Previous***

A checked menu item that turns the display of the Next/Previous Toolbar on and off.

## Reports

### ***Tree***

Displays the Tree Report dialog to create a fully detailed report of the selected tree level, including all sequences, components, nets, pins and ranges. Allow tree level selection for amount of detail.

### ***Net List***

Displays the Netlist Report dialog to create a fully detailed report of the sequence net list.

### ***Troubleshoot***

Displays the Troubleshoot Report dialog to create a fully detailed report of the sequence troubleshoot. Allow selection of signatures or not.

### ***Statistics***

Displays the Statistics Report dialog to create a report that shows how long the sequence will take to scan, total Prober travel, total test points, total components, total signatures, etc. for each sequence.

### ***Scan***

Displays the Scan Report dialog to create a report that shows the Scan history.

### ***Signature***

Displays the Signature Report dialog to create a report that shows the signatures.

### ***BOM***

Displays the Bill Of Materials Report dialog to create a fully detailed report of the Bill Of Materials of the board or sequence.

---

## File Toolbar

### **New**

Same function as File Menu New selection.

### **Open**

Same function as File Menu Open selection.

### **Save As**

Same function as the File Menu Save selection.

---

## Board Button Toolbar

A button for each board button defined. Each button performs the function specified in the button setup.

---

## Sequence Button Toolbar

A button for each sequence button defined. Each button performs the function specified in the button setup.

---

## Component/Net Button Toolbar

A button for each Component/ Net button defined. Each button performs the function specified in the button setup.

---

## Edit Toolbar

### **Add New**

Same function as Edit Menu Add New selection.

### **Copy**

Same function as Edit Menu Copy selection.

### **Paste**

Same function as Edit Menu Paste selection.

### **Cut**

Same function as Edit Menu Cut selection.

## **Delete**

Same function as Edit Menu Delete selection.

## **Build**

Same function as Edit Menu Build selection.

## **Repeat**

Same function as Edit Menu Repeat selection.

---

# **Actions Toolbar**

## **Scan Component**

Selects the Component grid of the Tree pane and the Scan tab of the Signature pane.

## **Scan Sequence**

Selects the Sequence tab of the Tree pan and the Scanning tab of the Signature pane.

## **Prober Home**

Move the probe tip up to home and then the probe head back and right to its home position using the limit switches to initialize home.

---

# **Next/Previous Toolbar**

## **Previous Component**

Changes the current component to the previous component on the Components tab.

## **Next Component**

Changes the current component to the next component on the Components tab.

## **Previous Pin**

Changes the current pin to the previous component on the Components tab.

## **Next Pin**

Changes the current pin to the next component on the Components tab.

---

# Tree Report

The Tree Report shows the values of the fields of the selected levels of the tree.

## Tree Report Dialog

### ***Top Level***

Tooltip: Select the top level of the tree which to include sub tree levels

Values: Board, Sequence, Component/Net

Default: Sequence

### ***Detail Level***

Tooltip: Select the lowest level of the tree to include in the report

Values: Sequence, Component/Net, Pin, Range

Default: Sequence

Pin and Range level reports can take up to several minutes to generate.

### ***Detail***

Tooltip: Select the amount of detail to include in the report

Values: Basic, Full

Default: Basic

### ***Preview***

Tooltip: View the report on screen and print or store.

### ***Cancel***

Tooltip: return to the Main Window.

---

# Netlist Report

The Netlist Report shows all of the nodes of each net.

## Netlist Report Dialog

### ***Level***

Tooltip: Select the top level of the tree which to include sub tree levels

Values: Board, Sequence

Default: Sequence

### ***Preview***

Tooltip: View the report on screen and print or store.

### ***Cancel***

Tooltip: return to the Main Window.

---

## **Troubleshooting Report**

The Troubleshooting Report shows the tests results of a scan.

### **Troubleshooting Report Dialog**

#### ***Level***

Tooltip: Select the top level of the tree which to include sub tree levels. Board and Sequence information always printed.

Values: Sequence, Component

Default: Sequence

#### ***Detail Level***

Tooltip: Select the lowest level of the tree to include in the report

Values: Component/Net, Pin, Range w/ Signatures

Default: Component/Net

Pin and Range level reports can take up to several minutes to generate.

#### ***Problem***

Tooltip: Enter the problem associated with the troubleshooting.

#### ***Solution***

Tooltip: Enter the solutions associated with the troubleshooting.

#### ***Preview***

Tooltip: View the report on screen and print or store.

#### ***Cancel***

Tooltip: return to the Main Window.

---

## **Statistics Report**

The Statistics Report shows the scan totals and estimates.

## Statistics Report Dialog

### ***Level***

Tooltip: Select the top level of the tree which to include sub tree levels

Values: Board, Sequence

Default: Sequence

### ***Preview***

Tooltip: View the report on screen and print or store.

### ***Cancel***

Tooltip: return to the Main Window.

---

## Scan Report

The Scan Report shows details of each scan.

## Scan Report Dialog

### ***Level***

Tooltip: Select the top level of the tree which to include sub tree levels. The Board and Sequence information are always printed.

Values: Board, Sequence, Component/Net

Default: Sequence

### ***Scans***

Tooltip: Select the scans to include in the report

Values: All, Reference, Merged, Non Reference/Merged, Current

Default: Reference

### ***Preview***

Tooltip: View the report on screen and print or store.

### ***Cancel***

Tooltip: return to the Main Window.

---

## Signature Report

The Signature Report shows the signatures of each scan.

## Signature Report Dialog

### ***Level***

Tooltip: Select the top level of the tree which to include sub tree levels. The Board and Sequence information are always printed.

Values: Sequence, Component/Net, Pin

Default: Component/Net

### ***Scans***

Tooltip: Select the scans to include in the report

Values: All, Reference, Merged, Non Reference/Merged, Current

Default: Current

### ***Preview***

Tooltip: View the report on screen and print or store.

### ***Cancel***

Tooltip: return to the Main Window.

---

## Bill Of Materials Report

The Bill of Materials Report shows replacement information for the components.

## Bill of Materials Report Dialog

### ***Level***

Tooltip: Select the top level of the tree which to include sub tree levels

Values: Board, Sequence

Default: Sequence

### ***Group By***

Tooltip: Select the Component/Net field to group the report

Values: Name, Type, Replacement, Part Number, Part Package

Default: Name

### ***Preview***

Tooltip: View the report on screen and print or store.

### ***Cancel***

Tooltip: return to the Main Window.

---

# Report Preview

## File Menu

### ***Page Setup...***

Displays the Page Setup dialog to allow changes to the Paper, Orientation and Margins.

### ***Print...***

Displays the Standard Windows Print dialog to allow the report to be printed.

### ***Print***

Prints the report to the default printer without prompting.

### ***Export To Document***

#### **PDF File**

Displays the Standard Windows Save As dialog to allow saving the report and a PDF file.

#### **HTML File**

Displays the Standard Windows Save As dialog to allow saving the report and a HTM or HTML file.

#### **Text File**

Displays the Standard Windows Save As dialog to allow saving the report and a Text file.

#### **CSV File**

Displays the Standard Windows Save As dialog to allow saving the report and a CSV file.

#### **MHT File**

Displays the Standard Windows Save As dialog to allow saving the report and a MHT file.

#### **Excel File**

Displays the Standard Windows Save As dialog to allow saving the report and an XLS file.

#### **Rich Text File**

Displays the Standard Windows Save As dialog to allow saving the report and a RTF file.



**Image File**

Displays the Standard Windows Save As dialog to allow saving the report and a BMP, GIF, JPEG, PNG, TIFF, EMF or WMF file.

***Send Via Email...*****PDF File**

Displays the Standard Windows Save As dialog to allow saving the report and a PDF file. Then attaches the file to a new email.

**Text File**

Displays the Standard Windows Save As dialog to allow saving the report and a Text file. Then attaches the file to a new email.

**CSV File**

Displays the Standard Windows Save As dialog to allow saving the report and a CSV file. Then attaches the file to a new email.

**MHT File**

Displays the Standard Windows Save As dialog to allow saving the report and a MHT file. Then attaches the file to a new email.

**Excel File**

Displays the Standard Windows Save As dialog to allow saving the report and an XLS file. Then attaches the file to a new email.

**Rich Text File**

Displays the Standard Windows Save As dialog to allow saving the report and a RTF file. Then attaches the file to a new email.

**Image File**

Displays the Standard Windows Save As dialog to allow saving the report and a BMP, GIF, JPEG, PNG, TIFF, EMF or WMF file. Then attaches the file to a new email.

***Exit***

Closes the dialog

**View Menu*****Page Layout*****Continuous**

Arranges the pages in a continuous vertical column.

**Facing**

Arranges the pages side-by-side.

***Tool Bar***

Controls the display of the Tool Bar at the top of the window.

***Status Bar***

Controls the display of the Status Bar at the bottom of the window.

***Customize...*****Tool Bars**

Control display of Tool Bars.

**Commands**

View available Commands.

**Options**

Control Preview Options.

**Background Menu*****Color...***

Allows setting of the background color of the report. The default is white.

***Watermark...***

Allows the creation of a watermark to be used as the background of the report.

---

## Board Dialog

**Fields*****Name***

Tooltip: The name, type or part number of the board

Default:

***Revision***

Tooltip: Revision of the board

Default:

***System***

Tooltip: The name of the system that contains the unit containing this board

Default:

### ***Unit***

Tool Tip: Equipment containing board

Default:

### ***Manufacturer***

Tooltip: The name of the board manufacturer

Default:

### ***Gold Disk Number***

Tooltip: The number to identify the board test

Default:

### ***Unit of Measure***

Tooltip: The unit of measure use for the coordinates of this board. If this value is changed all coordinates in the database will need to be updated.

Values: Inches, Mils, MM, Microns

Default: Set in Options or during Convert or Import

Modify: If changed, updates the entire board database with values in the new unit of measure and the Tools Options General Unit Of Measure

### ***Data Source***

Tooltip: The origination of the board data (i.e. CAD Import, Conversion, user entry....)

Values: CAD, User, Conversion, etc.

Default: User

Modify: Read Only

### ***Top Name***

Tool Tip: Name for the top side of the board

Default: TOP

### ***Top Image Right X***

Tooltip: The top side X position of the back right corner of the image in Board Unit of Measure

Default:

Modify: Read Only. Only changed using Image pane.

### ***Top Image Back Y***

Tooltip: The top side Y position of the back right corner of the image in Board Unit of Measure

Default:

Modify: Read Only. Only changed using Image pane.

### ***Top Image Pixel Size X***

Tooltip: The X pixel size of the top board image in Board Unit of Measure

Default:

Modify: Read Only. Only changed using Image pane.

### ***Top Image Pixel Size Y***

Tooltip: The Y pixel size of the top board image in Board Unit of Measure

Default:

Modify: Read Only. Only changed using Image pane.

### ***Top Image***

Tooltip: The image of the entire top side of the board

Modify: Read Only. Only changed using Image pane or by loading an image.

### ***Bottom Name***

Tool Tip: Name for the bottom side of board

Default: BOTTOM

### ***Bottom Image Right X***

Tooltip: The bottom side X position of the back right corner of the image in Board Unit of Measure

Default:

Modify: Read Only. Only changed using Image pane.

### ***Bottom Image Back Y***

Tooltip: The bottom side Y position of the back right corner of the image in Board Unit of Measure

Default:

Modify: Read Only. Only changed using Image pane.

### ***Bottom Image Pixel Size X***

Tooltip: The X pixel size of the bottom board image in Board Unit of Measure

Default:

Modify: Read Only. Only changed using Image pane.

### ***Bottom Image Pixel Size Y***

Tooltip: The X pixel size of the bottom board image in Board Unit of Measure

Default: 0

Modify: Read Only. Only changed using Image pane.

### ***Bottom Image***

Tooltip: The image of the entire bottom side of the board

Modify: Read Only. Only changed using Image pane or by loading an image.

## ***Instructions***

Tooltip: The instructions for setup and testing of the board

Default:

## **Buttons**

### ***Load CC File...***

The standard Windows Open File dialog is displayed to open an existing CC file. CC File \*.CC and All Files \*.\* are available as selectable file types. The CC file is added to the database to be displayed on the Image pane.

### ***Load Top Image...***

The standard Windows Open File dialog is displayed to open an existing BMP, GIX, JPG, JPEG, PNG, ICO, EMF or WMF Image file. The file is used to display the top side of the board. Files that are loaded in this manner, do not allow for clicking on the image in Image Tab of the Image Pane to move the Prober.

### ***Load Bottom Image...***

The standard Windows Open File dialog is displayed to open an existing BMP, GIX, JPG, JPEG, PNG, ICO, EMF or WMF Image file. The file is used to display the bottom side of the board. Files that are loaded in this manner, do not allow for clicking on the image in Image Tab of the Image Pane to move the Prober.

### ***Ok***

Closes the dialog and saves the changes.

### ***Cancel***

Closes the dialog without saving the changes.

### ***Buttons...***

Displays Buttons dialog. This is only available in Edit mode. If adding a new board click Ok and then edit the board.

### ***Help***

Displays this help

---

## **Button Setup Dialog**

### **Fields**

#### ***Order Number***

Tooltip: The number used to list the buttons in order

Default: 1

Modify: Read only

### ***Enabled***

Tooltip: Checked to enable the button, Uncheck to disable the button

Default: Checked

### ***Caption***

Tooltip: This is the text that is displayed on the menu

Default:

### ***Button Level***

Tooltip: The tree level of the button

Values: Board, Sequence, Component/Net

Modify: Read only

### ***Parent Id***

Tooltip: System created unique number to identify the buttons parent item

Modify: Read only

### ***Button Id***

Tooltip: System created unique number to identify each button

Modify: Read only

### ***Command Line***

Tooltip: This is the path to the program that is to be run.

Default:

### ***File Path***

Tooltip: The file path of the file to be loaded by the command line and stored in the database if selected

Default:

### ***Icon File Path***

Tooltip: The file path of the file to be loaded by the command line and stored in the database if selected

Default:

### ***Tooltip***

Tooltip: This is the tool tip for the button.

Default:

### ***Store File***

Tooltip: Checked to store the file in the database, unchecked access from File Path

Default: Unchecked

### ***Store Icon***

Tooltip: Checked to store the file in the database, unchecked access from FilePath

Default: Unchecked

## **Buttons**

### ***Browse...***

Tooltip: Select the Command Line file path.

### ***Browse...***

Tooltip: Select the file path of the icon to be used.

### ***Browse...***

Tooltip: Select the file path of the file to be used.

Button

### ***Load File...***

Tooltip: Loads the specified file into the database.

### ***Load File...***

Tooltip: Loads the specified file icon into the database.

### ***Previous***

Tooltip: Selects the previous button

### ***Next***

Tooltip: Selects the next button

### ***Add New***

Tooltip: creates a new button

### ***Ok***

Tooltip: Saves the current user changes and closes the dialog

### ***Cancel***

Tooltip: Does not save the current user changes and closes the dialog

### ***Help***

Tooltip: Displays context sensitive help for the Button dialog

---

## Actions Menu

### Scan Component

Shortcut: Ctrl+S

Selects the Component grid of the Tree pane and the Scan tab of the Signature pane.

### Scan Sequence

Shortcut: Ctrl+U

Selects the Sequence tab of the Tree pane and the Scanning tab of the Signature pane.

### Prober Home

Shortcut: Ctrl+H

Move the probe tip up to home and then the probe head back and right to its home position using the limit switches to initialize home.

---

## Tools Menu

### Options

#### *General Tab*

#### Unit of Measure

Tooltip: The units used to display prober coordinates. Disabled when a board file is open.

Values: Inches, Mils, MM, Microns

Default: Mils

Modify: Updates other options to the new Unit Of Measure

#### Failed Text

Tooltip: The text that is displayed when a scan fails

Default: FAILED

#### Passed Text

Tooltip: The test that is displayed when a scan passes

Default: PASSED

#### Disable Maintenance Warnings

Tooltip: Checking turns off the maintenance warnings when starting the software.



Default: Unchecked

### **Load Previous Board at Startup**

Tooltip: Loads the last board loaded from the previous time the software was run.

Default: Checked

### **Compare Depth**

Tooltip: Compare depth selection to allow Signatures that match at the pin or range level to allow the test to pass.

Values: Component/Net, Pin, Range

Default: Component/Net

### **Minimum Short Resistance (Ohms)**

Tooltip: This is the minimum resistance in ohms that defines a short.

Default: 0

### **Maximum Short Resistance (Ohms)**

Tooltip: This is the maximum resistance in ohms that defines a short.

Default: 10

### **Open Reprobe Times**

Tooltip: The number of times the pin is probed after an open is detected with Component Open Check set to Reprobe.

Default: 5

### **Board Path**

Tooltip: Sets the default path for board database files.

Default: Checked

### **Browse...**

Tooltip: Allows the selection of the Board Path.

Default: Checked

## ***Hardware Tab***

### **Tracker**

Tooltip: Select the hardware used to capture signatures

Values: None, ProTrack, TrackerPXI, Tracker 30, Access Tracker

Default: None

### **Tracker Port**

Tooltip: Select the parallel port or USB to connect the ProTrack

Values: None, USB, Parallel 378, Parallel 278, Parallel 3BC, GPIB

Default: None

### **Scanner**

Tooltip: Select the hardware used to connect cables

Values: None, ProTrack Scanner, GeoTest, NI Switch Executive, Scanner II, Scanner 31S

Default: None

Note: After selecting GeoTest click the GeoTest Setup button. After selecting NI Switch Executive see See Tips and Hints NI Switch Executive Configuration for more help.

### **Scanners**

Tooltip: The number of Scanner II connected to the Tracker 30.

Values: 1-8

Default: 1

This control is only displayed if Scanner II selected.

### **Prober**

Tooltip: Select the hardware used to position the probes

Values: None, Prober Ic, Prober IIc, Prober IIIc, Access, Access USB, Access 2 USB

Default: None

### **Prober Serial Port**

Tooltip: Select the serial port to communicate with the prober

Values: COM1, COM2, COM3, COM4, COM5

Default: COM1

Note: For Access USB and Access 2 USB Probers, set the Prober Serial port to the port identified in Windows Device Manager under Ports for the HS-20USB device.

### **Correction Steps**

Tooltip: The number of correction steps for the Access Prober

Values: 0-10

Default: 3

### **Frame Grabber**

Tooltip: The select the hardware used to capture images

Values: None, Sensoray X11, NI 14XX, Sensoray 2250

Default: None

**Note: NI 14XX requires NI-IMAQ 3.5.2 or later and NI-Vision Runtime 8.0 or later. I also NI-IMAQ needs to be set to NTSC in MAX. This can be accomplished by Selecting the Huntron.iid interface in MAX.**

### **XY Travel**

Tooltip: The default XY Travel for the Prober pane tabs.

Default: 2 mils or equivalent

### **Z Travel**

Tooltip: The default Z Travel for the Prober

Default: 128 mils or equivalent

### **GeoTest Setup**

Displays the GeoTest Setup dialog. This is only available if GeoTest is selected in the Scanner drop down list.

### **Tracker Connect/Disconnect**

Connect to the selected Tracker and Scanner hardware to control with the software. Disconnect the Tracker and Scanner hardware to allow it to be used stand alone.

### **Prober/Frame Grabber Connect/Disconnect**

Connect to the selected Prober and Frame Grabber hardware to control with the software. Disconnect the Prober and Frame Grabber hardware.

### **Auto Align Score**

Tooltip: The minimum score required for a matching image. A value of 1000 is a perfect match and zero is no match.

Values: 0-1000

Default: 800

### **Auto Align X Size**

Tooltip: The width in pixels of the area in the middle of the camera image used for Auto Align.

Values: 80-320

Default: 160

**Auto Align Y Size**

Tooltip: The height in pixels of the area in the middle of the camera image used for Auto Align.

Values: 60-240

Default: 120

**Auto Align Minimum Contrast**

Tooltip: The minimum amount of contrast expected in the shape features of the image. Contrast is defined as the difference between the maximum and minimum luminance of the color pixels.

Values:

Default: 0

**Auto Align Sub Pixel**

Tooltip: Check to have match results use subpixel accuracy.

Default: unchecked

***Color Tab*****Reference Signature Color**

Displays the reference signature color

**Select Color:**

Select the reference signature color from a Common Windows Color box.

Default: Green

**Current Signature Color**

Displays the current signature color

**Select Color:**

Select the current signature color from a Common Windows Color box.

Default: Red

**Hardware Signature Color**

Displays the hardware signature color

**Select Color:**

Select the hardware signature color from a Common Windows Color box.

Default: Blue

### **Graticule Color**

Displays the graticule color

### **Select Color:**

Select the graticule color from a Common Windows Color box.

Default: Black

### **Signature Background Color**

Displays the signature background color

### **Select Color:**

Select the signature background color from a Common Windows Color box.

Default: White

## ***Scan Tab***

### **Delete Previous Scan**

Tooltip: Deletes the previous scan not set to compare when the sequence is scanned again. This makes it worklike the previous version of software.

Default: NO

### **ASCII Store Delimiter**

Tooltip: The character used to delimit Troubleshoot ASCII files

Values: Tab, Comma, Semi-Colon, Space

Default: Tab

### **ASCII Store String Delimiter**

Tooltip: The character used to delimit Troubleshoot ASCII file strings

Values: None, Single Quote, Double Quote

Default: None

### **Auto Align**

Tooltip: Auto Align at the start of a sequence scan

Default: NO

### **Numeric Troubleshoot**

Tooltip: Sort the Troubleshoot by Component Order and Pin Number instead of Area and Deviation.

Default: NO

### ***Signature Tab***

#### **Type**

Tooltip: Show signatures as signatures or waveforms.

Values: Signatures, Waveforms

Default: Signatures

#### **On Top**

Tooltip: Displays the current signature on top of the stored signature(s) or the other way around. The hardware signature is displayed on top off current if current on top or under current if current is on the bottom.

Values: Current, Stored

Default: Current

#### **Style**

Tooltip: Signature displayed with one dot per data point or solid lines.

Values: Dotted, Line

Default: Line

#### **Graticule**

Tooltip: Displays a graticule behind the signatures if Checked. No graticule is displayed if unchecked.

Default: Checked

#### **SigAssist™**

Tooltip: Displays the calculated Resistance, Capacitance, Power, Forward and Reverse breakdown voltages.

Default: Checked

#### **Range Mode**

Tooltip: Sets the signature display mode for the Signatures and Troubleshoot tabs to Range Mode, if unchecked it is set to Pin Mode.

Default: Unchecked

#### **Sync Pin Range When Get Signature**

Tooltip: When checked performs a sync Pin/Range when Get Signature is performed.

Default: Unchecked

## ***Sequence Tab***

These settings are the defaults for sequences that are created. For more help on the settings see the Sequence help.

### **Component Sequence**

Default: Checked

### **Top Side**

Default: Checked

### **Z Home Between Components**

Default: Checked

### **Show Instructions**

Default: Unchecked

### **Auto Store ASCII**

Default: Unchecked

### **Auto Store Passed**

Default: Unchecked

### **Stop On Failed Component**

Default: Unchecked

### **Compare Priority**

Values: Same, All, Merge

Default: All

### **Slot**

Values: Top, Middle, Bottom, Base

Default: Top

### **Auto Store Level**

Values: Sequence, Component/Net, Pin, Range

Default: Sequence

### **Sort Band Width**

Tooltip: The width of bands used in the Component/Net Order Number “Set By Location” and “Set CAD Probes” features.

Default: 2000 mils or equivalent

### **Instructions**

Default:

## ***Component Tab***

These settings are the defaults for Components that are created. For more help on the settings see the Component help.

### **Package**

Default: DIP

### **Number Of Pins**

Default: 16

Verify: Numbers only

### **Pause**

Default: Unchecked

### **Open Recheck Depth (unit of measure)**

Values: Depends on Unit Of Measure (.008, .016, .024, .048 inches)

Default: Depends on Unit Of Measure (.008 inches)

### **Connection Type**

Default: Prober

### **Ranges Then Pin**

Default: Checked

### **Open Check Type**

Default: Recheck

### **Short Check Type**



Default: None

**Clear XY with Build/Repeat**

Default: Unchecked

**Prober Correction Steps**

Default: 3

**Pin Spacing (unit of measure)**

Default: 100 mils or equivalent

**Instructions**

(String)

Default:

***Net Tab***

These settings are the defaults for Nets that are created. For more help on the settings see the Net help.

**Number Of Pins**

Default: 1

**Connection Type**

Default: Prober

**Open Recheck Depth (unit of measure)**

Values: Depends on Unit Of Measure (.008, .016, .024, .048 inches)

Default: Depends on Unit Of Measure (.008 inches)

**Prober Correction Steps**

Default: 3

**Open Check Type**

Default: Recheck

**Pause**

Default: Unchecked

### **Scan All Pins**

This the Top Pin and Bottom Pin of the Net to ALL when created.

Default: Unchecked

### **Instructions**

Default:

### ***Pin Tab***

These settings are the defaults for Pins of Components or Nets that are created. For more help on the settings see the Pin help.

### **Channel**

Default: A

### **Prober Correction Steps**

Default: 0

Verify: Numbers only

### **Instructions**

Default:

### ***Range Tab***

These settings are the defaults for Ranges that are created. For more help on the settings see the Range help.

### **Range 1 Enabled**

Default: Checked

### **Range 1 Delay**

Values: 0-9

Default: 0

### **Range 2 Enabled**

Default: Checked

### **Range 2 Delay**

Values: 0-9

Default: 0

### **Range 3 Enabled**

Default: Unchecked

### **Range 3 Delay**

Values: 0-9

Default: 0

### **Range 4 Enabled**

Default: Unchecked

### **Range 4 Delay**

Values: 0-9

Default: 0

### **Range 1 Voltage**

Values: .2, .4, .6, .8, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20

Default: 3

List limited by the Resistance setting.

### **Range 1 Resistance**

Values: 10, 20, 50, 100, 200, 500, 1K, 2K, 5K 10K, 20K, 50K, 100K, Low, Med1, Med2

Default: 100

### **Range 1 Frequency**

Values: 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200, 300, 400, 500, 600, 700, 800, 900, 1K, 1.1K, 1.2K, 1.3K, 1.4K, 1.5K, 1.6K, 1.7K, 1.8K, 1.9K, 2K, 3K, 4K, 5K

List limited by the Resistance setting.

Default: 200

### **Range 1 Filter**

Default: Checked

### **Range 1 Max Samples**

Values: 1-9

Default: 5

### **Range 1 Tolerance**

Values: 0-99

Default: 5

### **Range 2 Voltage**

Values: .2, .4, .6, .8, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20

Default: 3

List limited by the Resistance setting.

### **Range 2 Resistance**

Values: 10, 20, 50, 100, 200, 500, 1K, 2K, 5K 10K, 20K, 50K, 100K, Low, Med1, Med2

Default: 10K

### **Range 2 Frequency**

Values: 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200, 300, 400, 500, 600, 700, 800, 900, 1K, 1.1K, 1.2K, 1.3K, 1.4K, 1.5K, 1.6K, 1.7K, 1.8K, 1.9K, 2K, 3K, 4K, 5K

List limited by the Resistance setting.

Default: 200

### **Range 2 Filter**

Default: Checked

### **Range 2 Max Samples**

Values: 1-9

Default: 5

### **Range 2 Tolerance**

Values: 0-99

Default: 5

### **Range 3 Voltage**

Values: .2, .4, .6, .8, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20

Default: 3

List limited by the Resistance setting.

### **Range 3 Resistance**

Values: 10, 20, 50, 100, 200, 500, 1K, 2K, 5K 10K, 20K, 50K, 100K, Low, Med1, Med2

Default: 1K

### **Range 3 Frequency**

Values: 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200, 300, 400, 500, 600, 700, 800, 900, 1K, 1.1K, 1.2K, 1.3K, 1.4K, 1.5K, 1.6K, 1.7K, 1.8K, 1.9K, 2K, 3K, 4K, 5K

List limited by the Resistance setting.

Default: 200

### **Range 3 Filter**

Default: Checked

### **Range 3 Max Samples**

Values: 1-9

Default: 5

### **Range 3 Tolerance**

Values: 0-99

Default: 5

### **Range 4 Voltage**

Values: .2, .4, .6, .8, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20

Default: 3

List limited by the Resistance setting.

### **Range 4 Resistance**

Values: 10, 20, 50, 100, 200, 500, 1K, 2K, 5K 10K, 20K, 50K, 100K, Low, Med1, Med2

Default: 100K

### **Range 4 Frequency**

Values: 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200, 300, 400, 500, 600, 700, 800, 900, 1K, 1.1K, 1.2K, 1.3K, 1.4K, 1.5K, 1.6K, 1.7K, 1.8K, 1.9K, 2K, 3K, 4K, 5K

List limited by the Resistance setting.

Default: 200

#### **Range 4 Filter**

Default: Checked

#### **Range 4 Max Samples**

Values: 1-9

Default: 5

#### **Range 4 Tolerance**

Values: 0-99

Default: 5

### ***Test***

#### **File Open**

Tooltip: Allow the user to select the board file on the tester Pane

Default: Unchecked

#### **Sequence**

Tooltip: Allow the user to selected the sequence on the Tester pone

Default: Checked

#### **Show Signature Pane**

Tooltip: Display the Signature Pane with the Tester Pane

Default: Unchecked

#### **Auto Print**

Tooltip: Automatically print a Troubleshoot report when testing with the Tester Pane

Default: Unchecked

#### **Auto PDF**

Tooltip: Automatically create a Troubleshoot PDF file in My Documents\Huntron\Troubleshoots when testing with the Tester Pane

Default: Unchecked

### **Troubleshoot Detail Level**

Tooltip: Select the detail level of the troubleshoot for Auto print or Auto PDF

Values: Component/Net, Pin Range w/ Signatures

Default: Component/Net

### **Buttons**

#### **Ok (Temporary)**

Only saves in memory and closes dialog

#### **Cancel**

Does not save and closes dialog

#### **Save (Permanent)**

Saves to memory and updates registry and closes dialog

### **Default Tab Values**

Sets the fields of the current tab to the factory defaults

### **Help**

Displays this help

## **Board Buttons**

Sub Menu items for each board button defined. Each button performs the function specified in the button setup.

## **Sequence Buttons**

Sub Menu items for each sequence button defined. Each button performs the function specified in the button setup.

## **Component/Net Buttons**

Sub Menu items for each Component/ Net button defined. Each button performs the function specified in the button setup.

## **Maintenance**

### ***ProTrack Diagnostics***

Used to verify operation of a ProTrack and create a loop compensation file.

### ***TrackerPXI Diagnostics***

Used to verify operation of a TrackerPXI.

### **Verify Hardware**

This test verifies the TrackerPXI power supplies, PXI trigger lines, the AUX connector signals, internal volt meter, frequency, and zero crossing duty cycle. Some of these tests require factory test equipment.

### **Calibrate**

This procedure adjusts the sine wave signals to compensate for DC offset, amplitude and capacitance of connected cabling. This should be run annually or as connected cabling and or instruments change.

### **Verify Calibration**

This procedure verifies the sine wave signal settings that compensate for DC offset, amplitude and capacitance of connected cabling. This also verifies signatures of internal reference resistances. This should be run monthly and if it fails calibration should be run.

### ***Sensoray x11 Diagnostics***

Used to verify operation of a Sensoray frame grabber and the attached camera.

### ***NI 14xx Diagnostics***

Used to verify operation of a National Instruments frame grabber and the attached camera.

### ***Sensoray 2250 Diagnostics***

Used to verify operation of a Sensoray frame grabber and the attached camera.

### ***Tracker Model 30 Diagnostics***

Used to verify operation of a Tracker Model 30 or Tracker Access.

### **Verify Hardware**

These tests require factory test equipment. This test verifies the Tracker power supplies, the AUX connector signals, internal volt meter, frequency, and zero crossing duty cycle.

### **Calibrate**

This procedure adjusts the sine wave signals to compensate for DC offset, amplitude and capacitance of connected cabling. This should be run annually or as connected cabling and or instruments change.

### **Verify Calibration**

This procedure verifies the sine wave signal settings that compensate for DC offset, amplitude and capacitance of connected cabling. This also verifies signatures of internal reference resistances. This should be run monthly and if it fails calibration should be run.



## Software Activation

Displays the Software Activation Dialog to enter new activation codes.

---

## GeoTest Setup Dialog

This dialog is used to set up PCI/PXI GeoTest Switch Cards to be used as a scanner. As a Switch card is selected the next switch card entry becomes available. The pins of the additional cards are treated as an extension of the scanner. See Tips and Hints GeoTest Switch Card Configuration for more help.

### Fields

#### ***Switch Card***

Tooltip: Select the switch card to be used.

Default: None

#### ***Slot***

Tooltip: Select the slot of the switch card.

Default: None

#### ***Test / Common***

Tooltip: Select the pin type configuration for the switch card. Test for test pins or Common for common pins.

Default: Test

#### ***Pins***

Tooltip: Displays the type and number of the pins for the switch card.

Modify: Read only

### Buttons

#### ***Ok (Temporary)***

Tooltip: Saves the current user changes in memory and closes the dialog

#### ***Save (Permanent)***

Tooltip: Saves the current user changes in memory, updates the registry and closes the dialog

#### ***Cancel***

Tooltip: Does not save the current user changes and closes the dialog

#### ***Help***

Tooltip: Displays context sensitive help for the Switch Card dialog

---

# Software Activation Dialog

The Software Activation dialog is available from the Tools->Software Activation menu.

## Tracker Activation Code

Enter the Tracker Activation Code provided by Huntron to activate control of the Tracker Hardware and other features.

## Prober Activation Code

Enter the Prober Activation Code provided by Huntron to activate control of the Prober Hardware and other features.

## Activate

Click to activate the software.

## Exit

Click to exit the program.

---

# Window Menu

## Tree Pane

A checked menu item that controls the display of the Tree Pane. Default is on.

## Prober Pane

A checked menu item that controls the display of the Prober Pane. Default is on if a Prober is connected.

## Signature Pane

Checked menu item that controls the display of the Signature Pane. Default is on if a Tracker is connected.

## Image Pane

Checked menu item that controls the display of the Image Pane. Default is on if a Prober is connected.

## Tester Pane

Checked menu item that controls the display of the Tester Pane. Default is off. Hides the other panes based on Options Test settings.

## **Lock**

A checked menu item that prevents panes from being docking, undocking, moving. Default is off.

## **Last Configuration**

Sets the panes and toolbars back to the state when the software was last exited.

## **Reset Panes**

Sets the panes and toolbars back to the factory default state.

---

# **Help Menu**

## **Huntron Workstation Help**

Displays this help contents

## **Manual**

Displays this help in a manual format PDF file.

## **Tutorials**

### ***Workstation***

Tutorial that walks the user through creating and running a test in the Workstation software.

### ***Model 30***

Tutorial that walks the user through using the Tracker Model 30 to create and run a test in the Workstation software.

### ***CAD Import***

Tutorial that walks the user through creating a test using CAD Import tools.

## **Technical Support**

Huntron Technical Support contact information:

Huntron, Inc.

15720 Main Street Suite 100

Mill Creek, WA 98012

(800) 426-9265

(425) 743-3171

<http://www.huntron.com>

[info@huntron.com](mailto:info@huntron.com)

## Software Maintenance

Huntron strives to provide the best possible software for the control of your Huntron hardware. Beginning with Huntron Workstation 4, Huntron charges a nominal fee for the continuation of support and software updates. The first year Maintenance is included with the purchase of software controlled products from Huntron or a Huntron authorized source. After the first year, the annual Maintenance fee must be paid to continue your access to software updates, upgrades and support. The Huntron Workstation software will automatically prompt you when the current Maintenance is about to expire or has expired. Huntron Workstation will continue to function normally even if your Maintenance is expired. Versions of software created after the expiration date will not run without maintained renewal.

The Maintenance fee is due annually from the date of purchase and is not prorated if paid after the expiration date. This means that for the first full year after the expiration date, the full maintenance fee will be charged. Maintenance that has been expired for more than one year will require that a full software license upgrade be purchased.

98-0462 Maintenance for Tracker system

98-0466 Maintenance for Tracker with Prober system

98-0465 Full Version 4.X License Upgrade

## Huntron Workstation Website

Link to <http://www.huntron.com/support/workstation.htm>

## Huntron Website

Link to <http://www.huntron.com>

## About Huntron Workstation

Program version, enabled feature, Prober settings and Tracker settings list.

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## Status Bar

The Status Bar is the area across the bottom of the Main window that shows the state of the program. It contains the following sections:

### Sequence

Tooltip: Displays the first 20 characters of the name of the currently selected sequence on the Tree pane Sequences tab.

## Component/Net

Tooltip: Displays the first 15 characters of the name of the currently selected component/Net on the Tree pane Components or Nets tab

## Pin

Tooltip: Displays the first 5 characters of the name of the currently selected pin on the Tree pane Pins tab.

## Range

Tooltip: Displays the name of the currently selected range on the Tree pane Ranges tab

## Unit of Measure

Tooltip: Displays the unit of measure of the currently open board file.

## Message

Tooltip: Displays system messages as needed

# Tree Pane

This pane contains the tree of information that constitutes the board test. The title is Tree - Board: boardname Revision: revision

---

## Sequences Tab

A sequence is a group of components or nets. The groups can be of components/nets on the same side of the board. They can be a group of components that are the most likely to fail. The components and nets can be sorted in an order convenient for scanning. When using a scanner sort by number of pins to reduce the number of times the clip size needs to be changed. Selecting a sequence allows the entire sequence to be scanned using the Signature pane Scan tab.

## Columns/Fields

### *Name*

Dialog Tooltip: Identifying name of the sequence (i.e. Quick test, full test...)

Default:

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

## ***Order Number***

Dialog Tooltip: Used to create custom sort order for the Sequences

Default: See Add New and Insert.

Right click menu:

Set to Current Order

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

## ***Component Sequence***

Dialog Tooltip: Checked if Sequence contains components, Unchecked if contains Nets

Default: Set in Options

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

## ***Top Side***

Dialog Tooltip: Checked if Top side of board, Unchecked if Bottom side of board

Default: Set in Options

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

## ***Slot***

Dialog Tooltip: The slot of the Prober where the board is placed

Values: Top, Middle, Bottom, Base

Default: Set in Options

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

## ***Z Home Between Component***

Dialog Tooltip: Checked for the probe to go to Z home between components, unchecked for the probe to go to the Z Up position between components

Default: Set in Options

Right Click Column Menu:

Set All to Current

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Compare Priority***

Dialog Tooltip: Same – compare to exact serial number if exists and the scan is set to Compare else default to All Serials. All Serials – compare to all non-merged scans set to Compare and report on the closest if only merges default to Merge. Merge – compare to Min/Max stored

Values: Same, All, Merge

Default: Set in Options

Right Click Column Menu:

Set All to Current

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Stop On Failed Component***

Dialog Tooltip: Checked stops sequence scan on component failure, Unchecked not to stop sequence scan

Default: Set in Options

Right Click Column Menu:

Set All to Current

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Auto Store ASCII***

Dialog Tooltip: Checked to add lines to the ASCII Troubleshoot file every time a component is scanned, Unchecked not to add .

Default: Set in Options

Right Click Column Menu:

Set All to Current

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Auto Store Level***

Dialog Tooltip: Sets the level of detail included in the ASCII Troubleshoot file

Values: Sequence, Comp/Net, Pin or Range

Default: Set in Options

Right Click Column Menu:

Set All to Current

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Auto Store File***

Dialog Tooltip: The filepath of the ASCII Troubleshoot file.

Default:

Right Click Column Menu:

Set All to Current

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Auto Store Passed***

Dialog Tooltip: Check to store passed scan information or Unchecked not to store passed scan information to the ASCII Troubleshoot file

Default: Set in Options

Right Click Column Menu:

Set All to Current

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Show Instructions***

Dialog Tooltip: Checked to display sequence instructions when the sequence is scanned, Unchecked to not display instructions

Default: Set in Options

Right Click Column Menu:

Set All to Current

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Align Top1 X***

Dialog Tooltip: The X Coordinate of the First Top Alignment Point stored in Board Unit of Measure

Default: 0

Modify: Read only

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Align Top 1Y***

Dialog Tooltip: The Y Coordinate of the First Top Alignment Point stored in Board Unit of Measure

Default: 0

Modify: Read only

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)



### ***Align Top 2X***

Dialog Tooltip: The X Coordinate of the Second Top Alignment Point stored in Board Unit of Measure

Default: 0

Modify: Read only

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Align Top 2Y***

Dialog Tooltip: The Y Coordinate of the Second Top Alignment Point stored in Board Unit of Measure

Default: 0

Modify: Read only

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Align Bottom1 X***

Dialog Tooltip: The X Coordinate of the First Bottom Alignment Point stored in Board Unit of Measure

Default: 0

Modify: Read only

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Align Bottom1 Y***

Dialog Tooltip: The Y Coordinate of the First Bottom Alignment Point stored in Board Unit of Measure

Default: 0

Modify: Read only

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Align Bottom2 X***

Dialog Tooltip: The X Coordinate of the Second Bottom Alignment Point stored in Board Unit of Measure

Default: 0

Modify: Read only

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Align Bottom2 Y***

Dialog Tooltip: The Y Coordinate of the Second Bottom Alignment Point stored in Board Unit of Measure

Default: 0

Modify: Read only

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Up Top Z***

Dialog Tooltip: The Z Up Coordinate of the Top Side stored in Board Unit of Measure

Default: 0

Modify: Read only

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Up Bottom Z***

Dialog Tooltip: The Z Up Coordinate of the Bottom Side stored in Board Unit of Measure

Default: 0

Modify: Read only

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Down Top Z***

Dialog Tooltip: The Z Down Coordinate of the Top Side stored in Board Unit of Measure

Default: 0

Modify: Read only

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Down Bottom Z***

Dialog Tooltip: The Z Down Coordinate of the Bottom Side stored in Board Unit of Measure

Default: 0

Modify: Read only

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Sequence ID***

Dialog Tooltip: System created unique number to identify each sequence

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Align Top1 Img***

(Not shown On Grid)

Dialog Tooltip: The Camera Image for the First Top Alignment point

Modify: Read only

### ***Align Top2 Img***

(Not shown On Grid)

Dialog Tooltip: The Camera Image for the Second Top Alignment point

Modify: Read only

### ***Align Bottom1 Img***

(Not shown On Grid)

Dialog Tooltip: The Camera Image for the First Bottom Alignment point

Modify: Read only

### ***Align Bottom2 Img***

(BMP) (Not shown On Grid)

Dialog Tooltip: The Camera Image for the Second Bottom Alignment point

Modify: Read only

### ***Instructions***

(Not shown On Grid)

Dialog Tooltip: Instructions for setup and testing of this sequence

Default: Set in Options

## Sequence Selected Actions

Updates the Component grid and selects the first Component. Change Prober Pane Tab to Align and Set the Align Point combo box to <Select>, Prober Pane title set to Not Aligned. Aligned = False. Sets the CAD tab side of board.

## Row Right Click Menu

### **Add New**

Display the Add Sequence dialog and if OK is clicked, add a new sequence at the end of the list. Highlight the new sequence in the grid

### **Edit**

Display the Edit Sequence dialog

### **Delete**

Delete the currently selected sequence(s).

### **Insert**

Display the Insert Sequence dialog and if OK is clicked, add a new sequence above the current sequence in the list. Highlight the new sequence in the grid

### **Repeat**

Add a new sequence at the end of the list with the same information as the current sequence except the name is blank. Highlight the new sequence in the grid

### **Build**

Add a new sequence at the end of the list with the same information as the current sequence and increment the name if it ends in a letter or a digit. Highlight the new sequence in the grid

### **Copy**

Create a copy of the currently selected sequence(s) in memory (not the windows clipboard)

### **Paste**

Add the sequence(s) stored in memory from a Copy or Cut to the end of the list. Highlight the new sequence in the grid

### **Cut**

This is a combination of Copy and Delete

### **Delete Scans**

Delete all of the scans and signatures for the current sequence.

### **Clear Component Up**

Sets the UpTopZ and UpBottomZ fields to 0 for all of the components of the current sequence. Not available for Net (CompSeq not checked) sequences.

## Dialog Buttons

### ***Browse***

Dialog Tooltip: Select a file to be used as the Auto Store file

Next to the Auto Store File control

### ***Ok***

Dialog Tooltip: Closes the dialog and updates the database with the changes made in the dialog. The grid is positioned to view and selects the sequence created.

### ***Cancel***

Dialog Tooltip: Closes the dialog and without updating the database with the changes made in the dialog

### ***Previous***

Dialog Tooltip: Saves changes to the current sequence to the grid/database. Shows and selects the previous sequence on the grid. Displays the field values for the newly selected sequence in the Edit Sequence dialog.

### ***Next***

Dialog Tooltip: Saves changes to the current sequence to the grid/database. Shows and selects the next sequence on the grid. Displays the field values for the newly selected sequence in the Edit Sequence dialog.

### ***Add New***

Dialog Tooltip: Saves changes to the current sequence to the grid/database. Creates a new sequence and displays the default field values in the Add New Sequence dialog.

### ***Repeat***

Dialog Tooltip: Saves changes to the current sequence to the grid/database. Creates a new sequence on the grid with a blank name.

### ***Build***

Dialog Tooltip: Saves changes to the current sequence to the grid/database. Shows and selects the newly added sequence on the grid with the name incremented.

### ***Delete***

Dialog Tooltip: Delete the current sequence and displays the next sequence in the Edit Sequence Dialog. Disabled on Add New and Insert dialogs.

### ***Delete Scans***

Dialog Tooltip: Delete all of the scans and signatures for the current sequence. Disabled on Add New and Insert dialogs.

### ***Buttons...***

Dialog Tooltip: Display the Button Setup Dialog for the current sequence

## ***Help***

Dialog Tooltip: Display context sensitive help for the Sequence dialog

---

# **Components or Nets Tab**

A component is a group of pins a physical component. The pins can be named to identify non numeric numbering schemes or function of the pin. Selecting a component allows the viewing of its signatures on the Signature pane Signature tab. Selecting a component, allows it to be scanned using the Signature pane Scan tab.

A net is a group of pins that are test points for nodes of the net. A single node can be scanned or all of the identified nodes of the net can be scanned. Selecting a net allows the viewing of its signatures on the Signature pane Signature tab. Selecting a net, allows it to be scanned using the Signature pane Scan tab.

## **Columns/Fields**

### ***Name***

Component Dialog Tooltip: The Reference Designator or grid location of the component

Net Dialog Tooltip: The Reference Designator or grid location of the net

Default:

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Order Number***

Component Dialog Tooltip: Used to create custom sort order for the components

Net Dialog Tooltip: Used to create custom sort order for the nets

Default: See Add New and Insert.

Right Click Column Menu:

Set to Current Order

Set to Location (sorts order by location on the board, See Sort Band Width in Options-General)

Set to CAD Probes(sorts order by location Probe names from CAD Import and on the board, See Sort Band Width in Options-General)

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Package***

Component Only (Default to Probe)

Component Dialog Tooltip: The style of the component package used to determine how many rows of pins.

Net Dialog Tooltip: Set to Probe unless cabling to nodes of the net

Values: Both, DIP, Front, Multi, Probe, SIP, DIP2X, SIP2X, Switch, MultiSIP, DIP II, SIP II

Default: Set in Options

Modify: Read Only if Edit Mode

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

**Note:** Changing the Package will delete all pins, ranges, scans and signatures of the component. The pins and ranges will be rebuilt from the Options defaults.

Scanner / Package compatibility Chart shows Channels available

Package	# Pins	Scanner I	Model 30S A*	Model 30S B*	Model 31S
DIP	2-64	A or B	A	A or B	A
SIP	1-64	A or B	A	A or B	A
Front	1-32	A or B	A	A or B	A
Both	2-64	A or B	A	A or B	A
Multi	1-2048				
Probe	1-2048				
DIP 2X	66-128	Both**		Both**	
SIP 2X	65-128	Both**		Both**	
Switch	1-2048				
MultiSIP	1-2048				
DIP II	66-1024		A***		
SIP II	65-1024		A***		

\* The A and B indicate the position of the channel switch on the Model 30S.

\*\* Both channels are used to get 128 pins.

\*\*\* Supports Daisy chain of multiple Scanner Model 30S with the Channel selector in the A position.

### **Number Of Pins**

Component Dialog Tooltip: The number of pins on the component

Net Dialog Tooltip: The number of nodes on the net to be setup for testing.

Values: 1-128

Default: Set in Options, Net default is 1.

Modify: Read Only if Edit Mode

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

**Note:** Changing the Number Of Pins will delete all pins, ranges, scans and signatures of the component. The pins and ranges will be rebuilt from the Options defaults.

## ***Type***

Component Only

Dialog Tooltip: The type of component used to Load/Save library components

Default:

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

## ***Pin Spacing***

Component Only

Dialog Tooltip: The distance between adjacent pins in a row.

Values: Based on the measurement units of the board.

Default: Set in options

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

## ***Connection Type***

Component Dialog Tooltip: Set the type of hardware that will be used to connect to the component, defaults to previous type if unavailable

Net Dialog Tooltip: Set the type of hardware that will be used to connect to the net, defaults to previous type if unavailable

Values: Probes, Scanner, Prober

Default: Set in Options

Right Click Column Menu:

Set Current All

Component/Nets

Sequences

Default All

Component/Nets

Sequences

Sort Ascending (Saved to Registry)



Sort Descending (Saved to Registry)

### ***Open Check Type***

Dialog Tooltip: Set the checking for open pins

Values: None, Recheck, Reprobe

Default: Set in Options

Right Click Column Menu:

Set Current All

Component/Nets

Sequences

Default All

Component/Nets

Sequences

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

None does not check for opens. Opens detected without a reference signal will be set to Dev 1001 and area of 10001 to place them at the top of the Troubleshoot. Check will move the probe down the recheck depth for each range if an open is detected and take a new signature. Reprobe will probe the pin Options General Reprobe Times for each range and then take a new signature.

### ***Open Recheck Depth***

Dialog Tooltip: Sets the additional depth used when rechecking opens

Values: .008, .016, .024, .048 inches (Displayed in selected Unit Of Measure)

Default: Set in Options

Right Click Column Menu:

Set Current All

Component/Nets

Sequences

Default All

Component/Nets

Sequences

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Converted Merges***

Dialog Tooltip: The number of times signatures have been merged

Default: 0

Modify: Read only

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Correction Steps***

Dialog Tooltip: The number of times the Access Prober corrects its position to get to the component.

Default: Set in Options

Right Click Column Menu:

Set Current All

Component/Nets

Sequences

Default All

Component/Nets

Sequences

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Pause***

Component Dialog Tooltip: Checked to stop a sequence scan to display the component instructions

Net Dialog Tooltip: Checked to stop a sequence scan to display the net instructions

Default: Set in Options

Right Click Column Menu:

Set Current All

Component/Nets

Sequences

Default All

Component/Nets

Sequences

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Ranges Then Pin***

Component Only

Component Dialog Tooltip: Checked to scan ranges then change pins, Unchecked to scan pins then changes ranges

Default: Set in Options

Right Click Column Menu:

Set Current All

Component/Nets  
Sequences  
Default All  
Component/Nets  
Sequences  
Sort Ascending (Saved to Registry)  
Sort Descending (Saved to Registry)

### ***Short Check***

Component Only

Component Dialog Tooltip: Enable checking of pin combinations for shorts when using a Scanner.

Values: None, Adjacent, All

Default: Set in Options

Combo or scroll box

Right Click Column Menu:

Set Current All  
Component/Nets  
Sequences  
Default All  
Component/Nets  
Sequences  
Sort Ascending (Saved to Registry)  
Sort Descending (Saved to Registry)

### ***Component/Net ID***

Component Dialog Tooltip: System created unique number to identify each component

Net Dialog Tooltip: System created unique number to identify each net

Modify: Read only

Right Click Column Menu:

Sort Ascending (Saved to Registry)  
Sort Descending (Saved to Registry)

### ***Sequence ID***

Dialog Tooltip: The numeric identifier of the parent Sequence

Default: 0

Modify: Read only

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Part Package***

Component Only

Dialog Tooltip: The industry standard package of the component

Default:

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Part Number***

Component Only

Dialog Tooltip: The part number of the component

Default:

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Part Tolerance***

Component Only

Dialog Tooltip: The Tolerance rating of the component

Default:

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Part Value***

Component Only

Dialog Tooltip: The value of the component

Default:

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Replacement***

Component Only

Dialog Tooltip: The part number of the part used to replace the component when faulty

Default:

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

## ***Supplier***

Component Only

Dialog Tooltip: The supplier or manufacturer of the replacement part

Default:

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

## ***Top X***

Component Only

Dialog Tooltip: The Top side X coordinate of the component stored in Board Unit of Measure

Default: 0

Modify: Read only

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

## ***Top Y***

Component Only

Dialog Tooltip: The Top side Y coordinate of the component stored in Board Unit of Measure

Default: 0

Modify: Read only

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

## ***Up Top Z***

Component Dialog Tooltip: The Top side Z Up coordinate of the component stored in Board Unit of Measure

Net Dialog Tooltip: The Top side Z Up coordinate of the net stored in Board Unit of Measure

Default: 0

Modify: Read only

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Bottom X***

Component Only

Dialog Tooltip: The Bottom side X coordinate of the component stored in Board Unit of Measure

Default: 0

Modify: Read only

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Bottom Y***

Component Only

Dialog Tooltip: The Bottom side Y coordinate of the component stored in Board Unit of Measure

Default: 0

Modify: Read only

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Up Bottom Z***

Component Dialog Tooltip: The Bottom side Z Up coordinate of the component stored in Board Unit of Measure

Net Dialog Tooltip: The Bottom side Z Up coordinate of the net stored in Board Unit of Measure

Default: 0

Modify: Read only

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Instructions***

(Not Shown on Grid)

Dialog Tooltip: Special instructions required for testing the component or notes about failure trends.

Dialog Tooltip: Special instructions required for testing the net or notes about failure trends.

Default: Set in Options

### ***Top Pin***

(Net Only)

Dialog Tooltip: The number of the pin to scan on the top of the board

Values: <All> and 1 to number of pins.

Default: 1

Read Only on grid

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

For Nets, this setting over rides the Scan Pin setting of the pin by only scanning the selected pin if Scan Pin is enabled. Pins with Scan Pin Enabled are not scanned unless selected in Top Pin.

### ***Bottom Pin***

(Net Only)

Dialog Tooltip: The number of the pin to scan on the top of the board

Default: <All> and 1 to number of pins.

Read Only on grid

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

For Nets, this setting over rides the Scan Pin setting of the pin by only scanning the selected pin if Scan Pin is enabled. Pins with Scan Pin Enabled are not scanned unless selected in Bottom Pin.

## **Component Net Selected Actions**

Updates the Pin grid and selects the first Pin.

Updates the Scan grid and selects the first Scan.

Updates the Signature Pane Signature tab.

Change Prober Pane Teach and Height tab pin combo box to <Select Pin>.

## **Row Right Click Menu**

### ***Add New***

Display the Add Component dialog and if OK is clicked, add a new component at the end of the list. Highlight the new component in the grid

### ***Insert***

Display the Insert Component dialog and if OK is clicked, add a new component above the current component in the list. Highlight the new component in the grid.

### ***Edit***

Display the Edit Component dialog

### **Delete**

Delete the currently selected component(s)/net(s).

### **Repeat**

Add a new component at the end of the list with the same information as the current component except the name is blank. Highlight the new component in the grid.  
Component Only.

### **Build**

Add a new component at the end of the list with the same information as the current component and increment the name if ending in a letter or a digit. Highlight the new component in the grid. Component Only.

### **Copy**

Create a copy of the currently selected component(s) in memory (not the windows clipboard)

### **Paste**

Add the component(s) stored in memory from a Copy or Cut to the end of the list. Highlight the new component in the grid

### **Cut**

This is a combination of Copy and Delete

### **Delete Scans**

Delete all of the scans and signatures for the current component.

### **Sync CAD**

Checked menu item that enables selecting of the component/net on the Image pane CAD tab component or net drop down list when a component/net is selected. This requires the Optional CAD Tools.

## **Dialog Buttons**

### **Ok**

Dialog Tooltip: Closes the dialog and updates the database with the changes made in the dialog. The grid is positioned to view and selects the component created.

### **Cancel**

Dialog Tooltip: Closes the dialog and without updating the database with the changes made in the dialog

### **Previous**

Dialog Tooltip: Saves changes to the current component to the grid/database after prompting the user. Shows and selects the previous component on the grid. Displays the field values for the newly selected component in the Edit Component dialog.



### ***Next***

Dialog Tooltip: Saves changes to the current component to the grid/database after prompting the user. Shows and selects the next component on the grid. Displays the field values for the newly selected component in the Edit Component dialog.

### ***Add New***

Dialog Tooltip: Saves changes to the current component to the grid/database after prompting the user. Shows and selects the newly added component on the grid. Displays the default field values in the Add New Component dialog.

### ***Repeat***

Dialog Tooltip: Saves changes to the current component to the grid/database after prompting the user. Creates a new sequence on the grid with a blank name. Component Only.

### ***Build***

Dialog Tooltip: Saves changes to the current component to the grid/database. Shows and selects the newly added component on the grid with the name incremented. Component Only.

### ***Delete***

Dialog Tooltip: Delete the current component and close the dialog. Disabled on Add New and Insert dialogs.

### ***Delete Scans***

Dialog Tooltip: Delete all of the scans and signatures for the current component after prompting Are you sure? Disabled on Add New and Insert dialogs.

### ***Buttons...***

Dialog Tooltip: Display the Button Setup Dialog for the current component

### ***Help***

Dialog Tooltip: Display context sensitive help for the Component dialog

---

## **Pins Tab**

A pin is a group of ranges used to scan. When using a Prober the pins are the physical location of where to contact the board during scanning.

### **Columns/Fields**

#### ***Name***

Dialog Tooltip: Then name of the pin

Default:

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Pin Number***

Dialog Tooltip: The number of the pin

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Net Name***

Dialog Tooltip: The net name if a component sequence. Hidden if Net Sequence.

Default:

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Correction Steps***

Dialog Tooltip: The number of times the Access Prober corrects its position to get to the pin.

Default: Set in Options

Right Click Column Menu:

Set Current All

Pins

Component/Nets

Sequences

Default All

Pins

Component/Nets

Sequences

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Channel***

Dialog Tooltip: Sets the Tracker channel to be used to capture signatures

Values: A, B

Default: Set in Options

Right Click Column Menu:

Set Current All

Pins

Component/Nets

Sequences

Default All

Pins  
Component/Nets  
Sequences  
Sort Ascending (Saved to Registry)  
Sort Descending (Saved to Registry)

### ***Unique Pin***

Dialog Tooltip: Checked if the pin is on a net with two or less nodes. Used for isolating faults

Default: Unchecked

Right Click Column Menu:

Sort Ascending (Saved to Registry)  
Sort Descending (Saved to Registry)

### ***Scan Pin***

Dialog Tooltip: Unchecked if the pin is to be skipped during scanning

Default: Checked

Right Click Column Menu:

Sort Ascending (Saved to Registry)  
Sort Descending (Saved to Registry)

This feature can be overridden by the Top Pin or Bottom Pin setting of the parent Net.

### ***Relay Number***

Dialog Tooltip: This is the number of the actual Scanner relay to be set for the pin

Right Click Column Menu:

Sort Ascending (Saved to Registry)  
Sort Descending (Saved to Registry)

### ***Order Number***

Dialog Tooltip: Used to create custom sort order for the pins

Default: Pin Number

Right Click Column Menu:

Set to Current Order  
Sort Ascending (Saved to Registry)  
Sort Descending (Saved to Registry)

### ***Pin ID***

Dialog Tooltip: System created unique number to identify each pin

Modify: Read only

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Component/Net ID***

Dialog Tooltip: The numeric identifier of the parent component or net

Modify: Read only

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Test Probe X***

Dialog Tooltip: The X Coordinate of the Pin stored in Board Unit of Measure

Default: 0

Modify: Read only

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Test Probe Y***

Dialog Tooltip: The Y Coordinate of the pin stored in Board Unit of Measure

Default: 0

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Test Probe Z***

Dialog Tooltip: The Y Coordinate of the pin stored in Board Unit of Measure

Default: 0

Right Click Column Menu:

Set All to 0

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Pulse***

Dialog Tooltip: Sets the mode of the Pulse Generator

Values: Off, DC, Pulse

Default: Off

Right Click Column Menu:

Set Current All

- Pins
- Component/Nets
- Sequences
- Default All
  - Pins
  - Component/Nets
  - Sequences
- Sort Ascending (Saved to Registry)
- Sort Descending (Saved to Registry)

### ***Pulse Type***

Dialog Tooltip: Sets the Pulse Generator to Positive, Negative or both output

Values: +, -, +/-

Default: +

Right Click Column Menu:

- Set Current All
  - Pins
  - Component/Nets
  - Sequences
- Default All
  - Pins
  - Component/Nets
  - Sequences
- Sort Ascending (Saved to Registry)
- Sort Descending (Saved to Registry)

### ***Pulse Level***

Dialog Tooltip: Sets the level of the Pulse Generator

Values: 0, .1, .2, ..... 9.9, 10

Default: 0

Right Click Column Menu:

- Set Current All
  - Pins
  - Component/Nets
  - Sequences
- Default All
  - Pins
  - Component/Nets
  - Sequences

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Duty Cycle***

Dialog Tooltip: Sets the percentage that the Pulse Generator signal is ON.

Values: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24 ,26 ,28 ,30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50

Default: 50

Right Click Column Menu:

Set Current All

Pins

Component/Nets

Sequences

Default All

Pins

Component/Nets

Sequences

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Shorts***

(Not shown on grid)

This bit arrays stores the pins that should be shorted.

### ***Instructions***

(Not Shown on Grid)

Dialog Tooltip: Instructions for setup and testing of this pin

Default: Set in Options

## **Pin Selected Actions**

Updates the Range grid and selects the first Range.

## **Row Right Click Menu**

### ***Edit***

Display the Edit Pin dialog

### ***Group Edit***

Displays the Group Edit window that allows set changing Pin and Range parameters for multiple Components/Nets and Pins based on the current pin and range.

### ***Net Edit***

Displays the Net Edit window that allows changing Pin and Range parameters for multiple Pins connected to multiple Nets based on the current pin and range.

### ***Sync CAD***

Checked menu item that enables selecting of the pin on the Image pane CAD tab pin drop down list when a pin is selected.

## **Dialog Buttons**

### ***Ok***

Dialog Tooltip: Closes the dialog and updates the database with the changes made in the dialog.

### ***Cancel***

Dialog Tooltip: Closes the dialog and without updating the database with the changes made in the dialog

### ***Previous***

Dialog Tooltip: Saves changes to the current pin to the grid/database. Shows and selects the previous pin on the grid. Displays the field values for the newly selected pin in the Edit Pin dialog.

### ***Next***

Dialog Tooltip: Saves changes to the current pin to the grid/database. Shows and selects the next pin on the grid. Displays the field values for the newly selected pin in the Edit Pin dialog.

### ***Help***

Dialog Tooltip: Display context sensitive help for the Pin dialog

---

## **Ranges Tab**

A range is a test condition for the pin.

### **Columns/Fields**

#### ***Range Number***

Dialog Tooltip: Specifies the order that the ranges will be scanned.

Default: See Add New and Insert.

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

#### ***Range ID***

Dialog Tooltip: System created unique number to identify each range

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Pin ID***

Dialog Tooltip: The numeric identifier of the parent Pin

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Enabled***

Dialog Tooltip: Checked if the range is to be scanned

Default: 4 ranges set in Options, else Checked

Right Click Column Menu:

Set Current All

Pins

Component/Nets

Sequences

Default All

Pins

Component/Nets

Sequences

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Voltage***

Dialog Tooltip: The voltage setting of the range

Values: .2, .4, .6, .8, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20

List limited by the Resistance setting.

Default: 4 ranges set in Options

Right Click Column Menu (Changes affect Voltage, Resistance and Frequency for the current range number).

Set Current All

Pins

Component/Nets

Sequences

Default All

Pins

Component/Nets



Sequences

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

## ***Resistance***

Dialog Tooltip: The resistance setting of the range

Values: 10, 20, 50, 100, 200, 500, 1K, 2K, 5K 10K, 20K, 50K, 100K, Low, Med1, Med2

Default: 4 ranges set in Options

Right Click Column Menu (Changes affect Voltage, Resistance and Frequency for the current range number):

Set Current All

Pins

Component/Nets

Sequences

Default All

Pins

Component/Nets

Sequences

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

## ***Frequency***

Dialog Tooltip: The frequency setting of the range

Values: 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200, 300, 400, 500, 600, 700, 800, 900, 1K, 1.1K, 1.2K, 1.3K, 1.4K, 1.5K, 1.6K, 1.7K, 1.8K, 1.9K, 2K, 3K, 4K, 5K

List limited by the Resistance setting.

Default: 4 ranges set in Options

Right Click Column Menu (Changes affect Voltage, Resistance and Frequency for the current range number):

Set Current All

Pins

Component/Nets

Sequences

Default All

Pins

Component/Nets

Sequences

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Filter***

Dialog Tooltip: Filters oscillation from Low, Med1, and Med2 Ranges.

Default: Set in Options

Right Click Column Menu:

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Max Samples***

Dialog Tooltip: The maximum number of signature samples to take trying to get a stable signature.

Values: 1-10

Default: Set in Options

Combo box

Right Click Column Menu:

Set Current All

Ranges

Pins

Component/Nets

Sequences

Default All

Ranges

Pins

Component/Nets

Sequences

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Tolerance***

Dialog Tooltip: The amount of tolerance allowed for each data point (-100 to 100) of the signature

Values: 0-100

Default: Set in Options

Combo box

Right Click Column Menu:

Set Current All

Ranges

Pins

Component/Nets

Sequences  
Default All  
Ranges  
Pins  
Component/Nets  
Sequences  
Sort Ascending (Saved to Registry)  
Sort Descending (Saved to Registry)

## ***Delay***

Dialog Tooltip: The amount of delay in seconds after the signal is applied and the signature is taken.

Values: 0 – 10

Default: Set in Options

Combo box

Right Click Column Menu:

Set Current All  
Ranges  
Pins  
Component/Nets  
Sequences  
Default All  
Ranges  
Pins  
Component/Nets  
Sequences  
Sort Ascending (Saved to Registry)  
Sort Descending (Saved to Registry)

Value settings:

Delay = 0 is 0 milliseconds  
Delay = 1 is 50 milliseconds  
Delay = 2 is 100 milliseconds  
Delay = 3 is 200 milliseconds  
Delay = 4 is 500 milliseconds  
Delay = 5 is 1000 milliseconds  
Delay = 6 is 2000 milliseconds  
Delay = 7 is 5000 milliseconds  
Delay = 8 is 10000 milliseconds

Delay > 8 is 10000 milliseconds

### ***Common Pin 1***

Dialog Tooltip: First Scanner Common Pin for the range

Default: 0

Right Click Column Menu:

Set Current All

Ranges

Pins

Component/Nets

Sequences

Default All

Ranges

Pins

Component/Nets

Sequences

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Common 1 Relay***

(Not shown on grid)

Dialog Tooltip: The Scanner Relay number for the first common pin

Default: 0

### ***Common Pin 2***

Dialog Tooltip: Second Scanner Common Pin for the range

Default: 0

Right Click Column Menu:

Set Current All

Ranges

Pins

Component/Nets

Sequences

Default All

Ranges

Pins

Component/Nets

Sequences

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Common 2 Relay***

(Not shown on grid)

Dialog Tooltip: The Scanner Relay number for the second common pin

Default: 0

### ***Prober Common 1***

Dialog Tooltip: First Prober Common for the range

Default: 0

Right Click Column Menu:

Set Current All

Ranges

Pins

Component/Nets

Sequences

Default All

Ranges

Pins

Component/Nets

Sequences

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

### ***Prober Common 2***

Dialog Tooltip: Second Prober Common for the range

Default: 0

Right Click Column Menu:

Set Current All

Ranges

Pins

Component/Nets

Sequences

Default All

Ranges

Pins

Component/Nets

Sequences

Sort Ascending (Saved to Registry)

Sort Descending (Saved to Registry)

## Range Selected Actions

None

## Row Right Click Menu

### **Add New**

Displays the Add Range dialog and if OK is clicked, add a new range at the end of the list. Highlight the new range in the grid

### **Insert**

Display the Insert Range dialog and if OK is clicked, add a new range above the current range in the list. Highlight the new range in the grid

### **Edit**

Display the Edit Range dialog

### **Group Edit**

Displays the Group Edit dialog that allows set changing Pin and Range parameters for multiple Components/Nets and Pins based on the current pin and range.

### **Net Edit**

Displays the Net Edit dialog that allows changing Pin and Range parameters for multiple Pins connected to multiple Nets based on the current pin and range.

### **Delete**

Delete the currently selected range(s).

### **Disable All**

#### **Pins**

Disable the current range number for all pins of the component

#### **Components/Nets**

Disable the current range number for all components/nets of the sequence

#### **Sequences**

Disable the current range number for all sequences of the board

### **Insert**

Displays the Add Range dialog and if OK is clicked, add a new range below the current range. Highlight the new range in the grid

### ***Copy***

Create a copy of the currently selected range(s) in memory (not the windows clipboard). This does not copy signatures.

### ***Paste***

Add the range(s) stored in memory from a Copy or Cut to the end of the list. Highlight the new component in the grid

### ***Cut***

This is a combination of Copy and Delete

## **Dialog Buttons**

### ***Ok***

Dialog Tooltip: Closes the dialog and updates the database with the changes made in the dialog. The grid is positioned to view and selects the range created.

### ***Cancel***

Dialog Tooltip: Closes the dialog and without updating the database with the changes made in the dialog

### ***Help***

Dialog Tooltip: Display context sensitive help for the Range dialog

---

## **Scans Tab**

A scan is a record of each time a component/net is scanned. Selecting a scan allows viewing of its troublesheet on the Signature pane Troubleshoot tab.

## **Columns/Fields**

### ***Serial Number***

The serial number of the board being scanned

Modify: Read only

Right Click Column Menu:

- Delete All Scans with Current Serial Number

- Component/Net

- Sequence

- Sort Ascending

- Sort Descending

### ***Operator***

The person running the scan

Modify: Read only

Right Click Column Menu:

- Delete All Scans with Current Operator

- Component/Net

- Sequence

- Sort Ascending

- Sort Descending

### ***Scan Date Time***

The Date and Time that the scan was started, this will be the same for every component of a sequence scan.

Modify: Read only

Right Click Column Menu:

- Delete All with Current Date Time

- And Earlier Component

- And Later Component

- And Earlier Sequence

- And Later Sequence

- Sort Ascending

- Sort Descending

### ***Merged***

Indicates that the scan was used to create the merged min/max signatures.

Modify: Read only

Right Click Column Menu:

- Delete All Merges

- Component/Net

- Sequence

- Merge All with Compare Checked

- Component/Net

- Sequence

- Sort Ascending

- Sort Descending

### ***Reference***

Checked if scan is to be used for comparing as a learn.

Right Click Column Menu:

- Set All Scans to Current Reference

- Component/Net



Sequence  
Delete All Scans with Current Reference  
Component/Net  
Sequence  
Sort Ascending  
Sort Descending

### ***Passed***

This indicates if the component passed the scan. First time scan components only fail if they have opens.

Modify: Read only

Right Click Column Menu:

Sort Ascending  
Sort Descending

### ***Removed***

This indicates that the component was removed from the troublesheet.

Modify: Read only

Right Click Column Menu:

Sort Ascending  
Sort Descending

### ***Area***

This is the greatest Area for all the signatures of the component.

Modify: Read only

Right Click Column Menu:

Sort Ascending  
Sort Descending

### ***Deviation***

This is the greatest Deviation for all the signatures of the component.

Modify: Read only

Right Click Column Menu:

Sort Ascending  
Sort Descending

### ***Min/Max***

The scan created by merging reference signatures

Modify: Read only

Right Click Column Menu:

Sort Ascending

Sort Descending

### ***Scan ID***

System created unique number to identify each component scan.

Modify: Read only

Right Click Column Menu:

Sort Ascending

Sort Descending

### ***Component Net ID***

The numeric identifier of the parent Component

Modify: Read only

Right Click Column Menu:

Sort Ascending

Sort Descending

## **Sequence Selected Actions**

Updates the Signature Pane Troubleshoot Tab.

## **Row Right Click Menu**

### ***Enable Sequence Reference***

Selects all of the component scans of the selected scan as reference

### ***Disable Sequence Reference***

Unselects all of the component scans of the selected scan as reference

### ***Delete Scan***

Delete the currently selected scan(s) and signatures

### ***Delete Scan All Components***

Delete the current scan and its signatures for all of the components in the sequence.

### ***Load Troubleshoot***

Set the Troubleshoot tab to the troubleshoot for the current scan.

---

## **Group Edit Dialog**

### **Fields**

#### ***Component/Net***

Tooltip: The name of the current component/net

### ***Pin***

Tooltip: Pin name and number of the current pin

### ***Net***

Tooltip: The net name of the current pin

### ***Range***

Tooltip: The current range

### ***Components/Nets***

Tooltip: A list of components with the same number of pins or nets for selection to update

Default: Current component selected

### ***Pins***

Tool Tip: The pins of the component or Top Pin, Bottom Pin, All Pins, or Both Pins for selection to update

Default: Current pin selected

### ***Channel***

Tooltip: Check to update the channel of the pins

Default: Unchecked

### ***Correction Steps***

Tooltip: Check to update the correction steps of the pins

Default: Unchecked

### ***Pulse***

Tooltip: Check to update the pulse settings of the pins

Default: Unchecked

### ***Relay Number***

Tooltip: Check to update the relay number of the pins

Default: Unchecked

### ***Scan Pin***

Tooltip: Check to update the scan pin of the pins

Default: Unchecked

### ***Unique Pin***

Tooltip: Check to update the unique pin of the pins

Default: Unchecked

## ***Ranges***

Tooltip: Check to replace the ranges of the pins

Default: Unchecked

## ***Common Pin 1***

(Only available if dialog opened from Signature or Range grid)

Tooltip: Check to update the common pin 1 of all ranges of the pins

Default: Unchecked

## ***Common Pin 2***

(Only available if dialog opened from Signature or Range grid)

Tooltip: Check to update the common pin 2 of all ranges of the pins

Default: Unchecked

## ***Delay***

(Only available if dialog opened from Signature or Range grid)

Tooltip: Check to update the delay of all ranges of the pins

Default: Unchecked

## ***Filter***

(Only available if dialog opened from Signature or Range grid)

Tooltip: Check to update the filter of all ranges of the pins

Default: Unchecked

## ***Max Sample***

(Only available if dialog opened from Signature or Range grid)

Tooltip: Check to update the max sample of all ranges of the pins

Default: Unchecked

## ***Prober Common 1***

(Only available if dialog opened from Signature or Range grid)

Tooltip: Check to update the prober common 1 of all ranges of the pins

Default: Unchecked

## ***Prober Common 2***

(Only available if dialog opened from Signature or Range grid)

Tooltip: Check to update the prober common 2 of all ranges of the pins

Default: Unchecked

## ***Tolerance***

(Only available if dialog opened from Signature or Range grid)

Tooltip: Check to update the tolerance of all ranges of the pins

Default: Unchecked

## Buttons

### ***Update Pins/Ranges***

Tooltip: Updates the Pins and ranges based on the Components/Nets and Pins selected. Changing the values selected with the check boxes.

### ***Close***

Tooltip: Closes this dialog.

### ***Help***

Tooltip: Displays this help

---

## Net Edit Dialog

## Fields

### ***Component***

Tooltip: The name of the current component

### ***Pin***

Tooltip: Pin name and number of the current pin

### ***Net***

Tooltip: The net name of the current pin

### ***Range***

Tooltip: The current range

### ***Nets***

Tooltip: A list of nets for selection to update

Default: Current net selected

### ***Channel***

Tooltip: Check to update the channel of the pins

Default: Unchecked

### ***Correction Steps***

Tooltip: Check to update the correction steps of the pins

Default: Unchecked

### ***Pulse***

Tooltip: Check to update the pulse settings of the pins

Default: Unchecked

### ***Relay Number***

Tooltip: Check to update the relay number of the pins

Default: Unchecked

### ***Scan Pin***

Tooltip: Check to update the scan pin of the pins

Default: Unchecked

### ***Unique Pin***

Tooltip: Check to update the unique pin of the pins

Default: Unchecked

### ***Ranges***

Tooltip: Check to replace the ranges of the pins

Default: Unchecked

### ***Update All Sequences***

Tooltip: Check to update Pins and ranges of all sequences

Default: Unchecked

### ***Common Pin 1***

(Only available if dialog opened from Signature or Range grid)

Tooltip: Check to update the common pin 1 of all ranges of the pins

Default: Unchecked

### ***Common Pin 2***

(Only available if dialog opened from Signature or Range grid)

Tooltip: Check to update the common pin 2 of all ranges of the pins

Default: Unchecked

### ***Delay***

(Only available if dialog opened from Signature or Range grid)

Tooltip: Check to update the delay of all ranges of the pins

Default: Unchecked

### ***Filter***

(Only available if dialog opened from Signature or Range grid)

Tooltip: Check to update the filter of all ranges of the pins

Default: Unchecked

### ***Max Sample***

(Only available if dialog opened from Signature or Range grid)

Tooltip: Check to update the max sample of all ranges of the pins

Default: Unchecked

### ***Prober Common 1***

(Only available if dialog opened from Signature or Range grid)

Tooltip: Check to update the prober common 1 of all ranges of the pins

Default: Unchecked

### ***Prober Common 2***

(Only available if dialog opened from Signature or Range grid)

Tooltip: Check to update the prober common 2 of all ranges of the pins

Default: Unchecked

### ***Tolerance***

(Only available if dialog opened from Signature or Range grid)

Tooltip: Check to update the tolerance of all ranges of the pins

Default: Unchecked

## **Buttons**

### ***Update Pins/Ranges***

Updates the Pins and ranges based on the Nets selected. Changing the values selected with the check boxes.

### ***Close***

Closes this dialog.

### ***Help***

Displays this help

# **Signature Pane**

A signature is a graphical representation of the effect the circuit has on the sine wave applied. The data of the signature and its SigAssist values can be displayed. To view signatures of different pins use the scroll bar on the side of the signature(s). To view signatures of different ranges use the scroll bar on the bottom of the signature(s).

Signature – Tracker: None Scanner: None

---

# Signature Tab

Displays the signatures for the current Component/Net and first scan selected in list. Update Scan List on Component grid row change and Scan grid row edit.

## Scan List

Tooltip: Allows multiple selection of the scans of the current component including <Merge> if any Min signatures exist.

When Scan(s) are selected the signatures are displayed based on the scan (s) and the Component selected in the Tree Pane Component/Net grid.

## Scale (1, 2, 3, 4, 5)

Tooltip: Sets the minimum number of signature boxes displayed both horizontal and vertical.

## Copy

Tooltip: Copy all currently viewed signatures to the clip board as meta files. These can be pasted in to applications like WordPad, Word etc. They cannot be pasted in to paint or notepad.

## Print

Tooltip: Displays the Signature Report dialog.

## Signature Boxes

The number of boxes is determined by Scale and the size of the pane. Display Pin name and range name at the top of each box. Display signatures based on Color and Signature Options. Displays the current signature on top of the stored signature(s) or the other way around based on the Options Signature On Top setting. The hardware signature is display on top off current if current on top or under current if current is on the bottom.

## *Signature Right Click Menu*

### Sync Pin/Range

Tooltip: Sets the Tree pane Pin and range to match the signature.

### Edit Range

Tooltip: Sets the Tree pane Pin and range to match the signature. Then opens the Edit Range dialog for the current range.

### Edit Pin



Tooltip: Sets the Tree pane Pin and range to match the signature. Then opens the Edit Pin dialog for the current pin.

### **Teach Pin**

Tooltip: Sets the Tree pane Pin and range to match the signature. Then selects the pin in the Prober Teach tab.

### **Teach Height Pin**

Tooltip: Sets the Tree pane Pin and range to match the signature. Then selects the pin in the Teach Height tab.

### **Get Signature**

Tooltip: Uses the current hardware to get a signature that is displayed in the hardware signature color.

### **Get Pin Signatures**

Tooltip: Uses the current hardware to get a signature that is displayed in the hardware signature color for all ranges of the pin if in Range Mode.

### **Replace Signature**

Tooltip: Replace the scan signature with the signature from the hardware. Disabled if more than one scan selected or MIN/MAX selected. Sets Area and Deviation to 0. Pass/Fail to Passed. Recalculates SigAssist. Set CompareId to 0.

### **Replace Pin Signatures**

Tooltip: Replace the scan signature with the signature from the hardware for all ranges of the pin if in Range Mode. Disabled if more than one scan selected or MIN/MAX selected. Sets Area and Deviation to 0. Pass/Fail to Passed. Recalculates SigAssist. Set CompareId to 0.

### **Group Edit**

Tooltip: Displays the Group Edit window that allows changing Pin and Range parameters for multiple Components/Nets and Pins based on the pin and range of the signature.

### **Net Edit**

Tooltip: Displays the Net Edit window that allows changing Pin and Range parameters for multiple Pins connected to multiple Nets based on the pin and range of the signature.

### **Realtime**

Tooltip: Checked menu item that uses the current hardware to constantly update all the displayed signatures in hardware signature color.

### **SigAssist**

Tooltip: Displays the SigAssist window

### **Sync CAD**

Tooltip: Selects the net of the signature pin in the CAD tab of the Image pane.

### **Copy**

Tooltip: Copy the current signature box to the clip board as a bitmap

### **Data**

Tooltip: Displays the signature data dialog

### **Range Mode/Pin Mode**

Tooltip: When Range Mode is clicked on the menu signatures are displayed 1 row per signature with columns of ranges, the menu changes to Pin Mode. When Pin Mode is clicked on the menu signatures of a specific range are displayed with each box a different pin, the menu changes to Range Mode.

### ***Left Double Click***

### **Zoom**

Tooltip: Reduces the signature display to one signature or returns from a single signature to the previous multi-signature display.

---

## **Scan Tab**

Allows scanning the selected sequence or component using the connected hardware. Creates a component scan record and signature data. Allows automatic logging of scan results to an ASCII file.

### **Serial Number**

Tooltip: The serial number of the board being scanned.

Default: blank

### **Operator**

Tooltip: The operator performing the scan.

Default: blank

## Results

Tooltip: Displays the results of the scan in a large font. Displays “PASSED” or “FAILED” text when the scan is complete.

Default: blank

Modify: Read only

Scanning without a reference set, canceling or stop with display “FAILED”. “PASSED” and “FAILED” text can be changed in Options -> General.

## Start

Tooltip: Displays the time the scan was started.

Modify: Read only

## Elapsed

Tooltip: Displays the amount of time the scan has been running. The counting stops if the scan is stopped. It continues counting when the scan is continued.

Modify: Read only

## Est.

Tooltip: Displays the calculated time to perform the scan. Based on the number of ranges, the hardware selected and the connection type.

Modify: Read only

## Left

Tooltip: Displays the Estimated time subtracted by the Elapsed time.

Modify: Read only

## Component/Net Counter

Tooltip: Displays the component/net counter which is incremented each time a component scan starts.

Modify: Read only

## Component/Net Count

Tooltip: Displays the number of components/nets to be scanned. Component sets this to 1.

Modify: Read only

## Pass

Tooltip: Displays the number of times the components/net or Sequence has been scanned, if Continuous is checked.

Modify: Read only

## Stop On Failure

Tooltip: The scan stops if a failure is detected.

Default: Set in options

## Continuous

Tooltip: The scans continuously until stopped or Stops On Failure if checked.

Default: Set in options

## List

Tooltip: Checking displays the sequence Instructions dialog when Start is clicked to allow selection of a Scan list for scanning. Setting saved in the registry.

Default: Unchecked

## Start

Tooltip: Starts a Sequence scan if the Tree Sequence tab is selected. Starts a Component/Net scan if the Tree Component/Net, Pin or Range tab is selected.

Note: Access USB and Access 2 USB users can Start the Probe Tip Live Camera to view the probe tip during the following steps. Be sure to Stop the Live Camera when finished.

Asks for Serial Number if blank. If connection is cable (Scanner), prompts for the connection of each component. If connection is probes prompts for connection of each pin or each range if different common pins. Creates a scan record in the scan table. Scanning rechecks opens at each pin. Checks for opens on all ranges using vertical data close to zero. Comparison is done at each range and stored in the database. Does not stop unless stop on difference is set. Signature box is updated. First time scan all opens are failures. Elapsed and Remaining times are updated. Component/Net counter is updated. PC Speaker beeps at end of a component scan and three times at the end of a Sequence Scan (if Audio turned on in options.).

Instructions Display: Prompt with sequence instructions if not blank and sequence scan if Sequence Show Instructions is checked. Show Component instruction if not blank, Sequence Show Instructions is checked and Component Pause is checked or connection in Cable (Scanner) or Probes. Show Pin Instructions if instructions are not blank, connection is Probes and Sequence Show Instructions is checked. See the Scan Component Section for details of hardware tasks during scanning.

Button

The Tracker footswitch is detected when the user is prompted to connect to a component or pin. It should “click” the Ok button on the prompt when the switch is closed.

## ***Component Scan***

This assumes that Component Connection Type is Probes. Other connection types are specifically identified.

When the Start button is clicked on the Scanning Tab the user is required to enter a serial number if the field is blank.

A Component Scan record is created with Operator, Serial Number and Date/Time set.

A dialog prompts the user to connect to each pin of the component/Net and has Scan Pin, Next, Previous and cancel buttons. If Options Scan Tab Update Tree is true. The Tree Pane grid displayed is updated by selecting the appropriate row for the item being scanned. If Options Scan Tab Update Image is true then the displayed Image Pane CAD Tab, Board Image Tab or View PCB tab is panned to the component being scanned.

If a Net sequence is selected and Sequence TopSide is true then Net TopPin determines if All (Component Number Of Pins) or a single pin is scanned. If Bottom Side is true then Net Bottom Pin determines if All (Component Number of Pins) or a single pin is scanned.

If Component Connection Type is Prober, Sequence Zhome Comp is used to determine if the Probe goes to the up position (Sequence UpTopZ or Sequence UpBottomZ) or Z home position.

If Component Connection Type is Prober Component Correction Steps are used when moving to the component pin from another component

If a Component sequence is selected all (Component Number of Pins) of the pins are scanned.

If Component Connection Type is Scanner (Or two headed Prober?) and Component ShortCheck is Adjacent or All then a short check is performed. See Short Check below.

When each pin is scanned the following Steps are performed:

If Component Connection Type is Prober Pin Test Probe Number, Pin Test Probe X, Pin Test Probe Y, Pin Test Probe Z, Pin Common Probe Number, Pin Common Probe X, Pin Common Probe Y and Pin Common Probe Z with alignment adjustment are used to position the probe tips on the pins.

If Component Connection Type is Prober Component UpTopZ or

Component UpBottomZ is used when moving between pins of the component.

If Component RangeThenPin is True, each Range of the pin is scanned. If Component RangeThenPin is False Then all of the pins are scanned in the first range and then the Range is changed.....

If Component Connection Type is Scanner Pin Relay Number is used to determine the Scanner test pin to activate.

If Component Connection Type is Scanner Range CommonPin1, Range Common1RelayNumber, Range CommonPin2 and Range Common2RelayNumber are used to determine the Scanner Common relays to activate.

If Component Connection Type is Prober Range ProberCommon1, and Range ProberCommon2 are used to set the Prober Commons.

If Component Connection Type is Probes the Connect Component/Net Pin dialog is displayed for each pin.

Pin Scan is used to determine if a pin is to be scanned.

Pin Channel is used to set the channel of the Tracker.

Pin Pulse, Pulse Type, Duty Cycle and Pulse Level are set as needed.

Range Enable is used to determine if the range is to be scanned.

Range Voltage, Resistance and Frequency are used to set the Tracker range.

Range Filter is used to determine if the signature needs to be filtered

RangeMax Samples is used to determine how many signatures are taken.

Range Delay is used to determine how long to activate the signal before capturing the signature.

After a signature is taken the Scanning tab the signature is compared to the compare signatures. See Compare Signatures below. Then the signature box is updated with the signature.

Signature record is created with Horizontal, Vertical, Capacitance, Resistance, Power, and Forward Break down, Reverse Break down, Horizontal Peak, Vertical Peak, Passed, Area, Deviation, CompareSigId and the Hardware Used.

Open Check is performed on all signatures. See Open Check below.

The created Component Scan record is updated with Passed, Area and Deviation.

At the end of all scanning if Options Scan Tab AutoStore Troubleshoot is true the appropriate lines are added to the ASCII Troubleshoot file.

If Component Connection Type is Prober, Sequence Zhome Comp is used to determine if the Probe goes to the up position (Sequence UpTopZ or Sequence UpBottomZ) or Z home position.

### ***Sequence Scan***

A sequence scan performs a Component scan of each component/net in the sequence in Component/Net OrderNumber order.

If the Sequence tab is selected on the Tree Pane and the current Sequence Show Instructions is true the Sequence instructions field is displayed in a dialog.

All Component Scan record is created with the same Operator, Serial Number and Date/Time created at the time of the first component scan.

After each component/net is scanned, if Sequence StopOnFailedComp is true the sequence scanning is stopped. The failed component is selected on the Troubleshoot tab.

### ***Signature Compare***

The signature is compared to the compare/merged signatures. The Sequence Compare Priority determines which signatures are compared. Same – compare to exact serial number if exists and has Reference set, else default to All Serials. All Serials – compare to all non-merged scans with reference set and report on the closest if only merges default to Merge. Merge – compare to Min/Max stored signatures with Reference set. The signatures fail if any Horizontal data point differs more than the Range Tolerance.

The Deviation is the amount the most different Horizontal data point is out side of the tolerance. Signatures that are with in the tolerance should have a 0 or negative deviation.

The Area is the sum of all the deviations greater than 0. Signatures that are with in the tolerance should have a 0 or negative area.

The Options Compare Depth of Component/Net compares all the signatures for all pins and ranges on the component to each scan as a group. To pass, all the pins and ranges must pass an individual scan.

The Options Compare Depth of Pin compares all the signatures for all ranges on the pin to each scan as a group. To pass, all the ranges must pass an individual scan.

The Options Compare Depth of Range compares the signature of each range to each scan. To pass, range must pass one scan.

If a signature does not exist for a range then the signature fails with a Deviation of 1,000 and an Area of 10,000.

### ***Open Recheck***

If there are no signatures to compare to each of the signatures that is detected as an open will have its deviation set to 1001 and the area set to 10001. If Recheck is selected and an open signature is detected, the probe will move down the recheck depth and acquire a new signature. If Reprobe is selected and an open signature is detected, the probe will probe the pin Options General Reprobe Times and then acquire a new signature.

### ***Short Check***

## **Adjacent**

Uses a Scanner to connect to each adjacent pin combination and compares the signature to a known good short signature.

## **All**

Uses a Scanner to connect to all pin combination and compares the signature to a known good short signature.

If Component Short Check is Adjacent, Options Minimum Short Resistance and Options Maximum Short Resistance are used to determine if pins are shorted. This detection is done by a comparison of the signature to a known good short with a tolerance based on the Min and Max Resistance. If Component Short Check is All then Options Minimum Short Resistance and Options Maximum Short Resistance are used to determine if all pin combinations are shorted. This detection is done by a comparison of the signature to a known good short with a tolerance based on the Min and Max Resistance.

## **Scan Sequence Dialog**

### ***Board Instructions***

Tooltip: Displays the instructions for the board set in the Board dialog Displays a message about how to connect the pin.



Modify: Read Only

### ***Sequence Instructions***

Tooltip: Displays the instructions for the sequence set in the Sequence dialog.

Modify: Read Only

### ***Scan List File***

Tooltip: The file path of the scan list to be used when the Scan List button is clicked or edited when the Add/Edit List button is clicked.

### ***Add/Edit List***

Tooltip: Displays the Scan List dialog.

### ***Browse...***

Tooltip: Uses the Windows File Open dialog to allow selection of the file path for the Scan List File field.

### ***Scan***

Tooltip: Scans all of the components of the current sequence.

### ***Scan List***

Tooltip: Scans the components of the current sequence that are listed in the scan list file.

### ***Cancel***

Tooltip: Cancels the scan

## **Scan List Dialog**

### ***Sequence Components/Nets***

Tooltip: Displays the Components/Nets of the current sequence.

### ***Scan List Components/Nets***

Tooltip: Displays the Components/Nets in the Scan List.

**>>**

Tooltip: Adds all of the Sequence Component/Nets to the Scan List.

**>**

Tooltip: Adds the selected Component/Nets to the Scan List.

**<**

Tooltip: Removes the selected Component/Nets from the Scan List.

**<<**

Tooltip: Removes all of the Component/Nets from the Scan List.

**^**

Tooltip: Moves the single selected Component/Net up in the Scan List.

**v**

Tooltip: Moves the single selected Component/Net down in the Scan List.

### ***Alphanumeric Sort***

Tooltip: Sorts the Sequence Components/Nets alphanumerically. When unchecked they are listed in Order Number order.

### ***Open...***

Tooltip: Uses the Windows File Open dialog to allow selection of the Scan List File to edit.

### ***Save***

Tooltip: Uses the Windows File Save dialog to save the Scan List File.

### ***Save As...***

Tooltip: Uses the Windows File Save dialog to save the Scan List File under a different name.

### ***Close***

Tooltip: Closes the Scan List dialog.

## **Connect Component/Net Or Pin Dialog**

### ***Message***

Tooltip: Displays a message about how to connect the pin.

Modify: Read Only

### ***Instructions***

Tooltip: Displays the instructions for the pin set in the Pin dialog.

Modify: Read Only

### ***Previous Pin***

Tooltip: Returns to the previous pin to enable it to be scanned again.

### ***Ok***

Tooltip: Continues to the next pin to be scanned.

Pressing the Tracker footswitch clicks the Ok button.

### ***Stop***

Tooltip: Stops the scan allowing it to be continued if it is a sequence scan

### ***Cancel***

Tooltip: Cancels the scan

## **Short Check Dialog**

### ***Test Pin***

Tooltip: Displays the current Test pin activated for the shorts check.

Read Only

### ***Common Pin***

Tooltip: Displays the current Common pin activated for the shorts check.

Read Only

### ***Show Only Differences***

Tooltip: Checked to only show the shorts that don't match the stored shorts.

Default: Checked

### ***Stored Shorts***

Tooltip: Displays the list of pins that are stored as shorts.

Read Only

### ***Shorts***

Tooltip: Displays the list of pins that are shorted.

Read Only

### ***Rescan***

Tooltip: Scans the pins again and updates the short information.

### ***Stop***

Tooltip: Cancels the checking for shorted pins.

Button

### ***Store***

Tooltip: Stores the shorted pins for each pin of the component.

Button

### ***Close***

Tooltip: Closes this dialog and continues the scan.

Button

### ***Help***

Tooltip: Displays help for the short check dialog.

Button

### ***Exit***

Tooltip: Closes this dialog and stops the scan.

Button

## **Stop**

Tooltip: Stops a currently running scan. Disabled unless a scan is in process.

## **Continue**

Tooltip: Continues a scan that has been stopped. Disabled unless a scan has been stopped.

## **Merge**

Tooltip: Sets the scan to be used in merged signature and performs the merge. The button is disabled until scan complete and is disabled after clicking. Merge the SigAssist values as well as the signature data.

## **Troubleshoot**

Tooltip: Changes to the Troubleshoot tab and selects the current scan in the Scan grid.

## **Set Reference**

Tooltip: Sets the scan to be used in comparisons (Reference checked on Tree Scans tab). The button is disabled until scan complete and is disabled after clicking.

## **Signature Box**

Display signatures based on Color and Signature Options.

---

# **Troubleshoot Tab**

Displays the scan results of the scan selected on the Tree pane Scans tab.

## **Tab Selected Actions**

None – Select Scan on scan grid to create a Troubleshoot. If activated by the Troubleshoot button on the Scanning tab, the scan should automatically be selected.

## Failed Item List

Tooltip: Sequence components/nets that failed in difference order.

When a component/Net is selected the signatures are updated based on the component selected and the Date and Time of the scan selected in the Tree Pane Scan Grid. The Remove button is enabled and set to Remove.

## Removed Item List

Tooltip: Sequence components/nets that have been removed in difference order.

When a component/Net is selected the signatures are updated based on the component selected and the Date and Time of the scan selected in the Tree Pane Scan Grid. The Remove button is enabled and set to UnRemove.

## Passed Item List

Tooltip: Sequence components/nets that passed in difference order.

When a component/Net is selected the signatures are updated based on the component selected and the Date and Time of the scan selected in the Tree Pane Scan Grid. The Remove button is disabled.

## Next

Tooltip: Changes to the next component/net in difference order. Spans the Failed, Removed and Passed list boxes.

## Previous

Tooltip: Changes to the previous component/net in difference order. Spans the Failed, Removed and Passed list boxes.

## Summary

Tooltip: Displays number of components/nets scanned, number passed, number failed, number removed and shows the components/nets not scanned.

Summary Dialog Layout

Components/Nets Scanned: ###

Components/Nets Passed: ###

Components/Nets Failed: ###

Components/Nets Removed: ###

Components/Nets Not Scanned: (List box)

Ok Button

## Remove / UnRemove

Tooltip: Removes the selected failed component/net or un-removes the selected removed component/net from the Troubleshoot.

## **Store**

Tooltip: Displays the Store Troubleshoot dialog

## **Delete**

Tooltip: After a warning deletes the Troubleshoot scan and all of its signatures.

## **Print**

Tooltip: Displays the Troubleshoot Report dialog

## **Copy**

Tooltip: Copy all currently viewed signatures to the clip board as BMP files

## **Update**

Tooltip: Compares all of the signatures again in case compare or tolerance changes.

## **Scale (1, 2, 3, 4, 5)**

Tooltip: Sets the minimum number of signature boxes displayed both horizontal and vertical.

## **Set Reference**

Tooltip: Sets the scan to be used in comparisons (Reference checked on Tree Scans tab).. The button is disabled until scan complete and is disabled after clicking.

## **Merge**

Tooltip: Sets the scan to be used in merged signature and performs the merge. The button is disabled until scan complete and is disabled after clicking.

## **Signature Boxes**

The number of boxes is determined by Scale and the size of the pane. Display Pin name and range name at the top of each box in difference color. Display signatures based on Color and Signature Options.

### ***Right Click Menu***

#### **Sync Pin/Range**

Tooltip: Sets the Tree pane Pin and range to match the signature.

#### **Edit Range**

Tooltip: Sets the Tree pane Pin and range to match the signature. Then opens the Edit Range dialog for the current range.

**Edit Pin**

Tooltip: Sets the Tree pane Pin and range to match the signature. Then opens the Edit Pin dialog for the current pin.

**Teach Pin**

Tooltip: Sets the Tree pane Pin and range to match the signature. Then selects the pin in the Prober Teach tab.

**Teach Height Pin**

Tooltip: Sets the Tree pane Pin and range to match the signature. Then selects the pin in the Teach Height tab.

**Get Signature**

Tooltip: Uses the current hardware to get a signature that is displayed in the hardware signature color.

**Get Pin Signatures**

Tooltip: Uses the current hardware to get a signature that is displayed in the hardware signature color for all ranges of the pin if in Range Mode.

**Replace Signature**

Tooltip: Replace the scan signature with the signature from the hardware. Performs the comparison again to update the signature Area, Deviation, Pass/Fail, SigAssist.....

**Replace Pin Signatures**

Tooltip: Replace the scan signature with the signature from the hardware for all ranges of the pin if in Range Mode. Performs the comparison again to update the signature Area, Deviation, Pass/Fail, SigAssist.....

**Group Edit**

Tooltip: Displays the Group Edit window that allows set changing Pin and Range parameters for multiple Components/Nets and Pins based on the pin and range of the signature.

**Net Edit**

Tooltip: Displays the Net Edit window that allows changing Pin and Range parameters for multiple Pins connected to multiple Nets based on the pin and range of the signature.

**Realtime**

Tooltip: Checked menu item that uses the current hardware to constantly update all the displayed signatures in hardware signature color.

### **SigAssist**

Tooltip: Displays the SigAssist window

### **Sync CAD**

Tooltip: Selects the net of the signature pin in the CAD tab of the Image pane.

### **Copy**

Tooltip: Copy the current signature box to the clip board as a bitmap

### **Data**

Tooltip: Displays the signature data dialog

### **Range Mode/Pin Mode**

Tooltip: When Range Mode is clicked on the menu signatures are displayed 1 row per signature with columns of ranges, the menu changes to Pin Mode. When Pin Mode is clicked on the menu signatures of a specific range are displayed with each box a different pin, the menu changes to Range Mode.

## ***Double Left Click***

### **Zoom**

Tooltip: Reduces the signature display to one signature or returns for a single signature to the previous multi-signature display.

## **Store Troubleshoot Dialog**

### ***Serial Number***

Tooltip: Displays the Serial Number associated with the Troubleshoot.

Default: Scan Serial Number

(Read Only)

### ***Store Level***

Tooltip: Select the level of Troubleshoot information detail to store.

Values: Sequence, Component/Net, Pin, Range

Default: Sequence->Auto Store Level

### ***Problem***

Tooltip: Enter the problem associated with the Troubleshoot.



### ***Solution***

Tooltip: Enter the solution associated with the Troubleshoot.

### ***ASCII File***

Tooltip: Browse for the file name and path of the ASCII file to store Troubleshoot information.

Default: Options Sequence Auto Store File

### ***Browse...***

Tooltip: Browse for the file name and path of the ASCII file to store Troubleshoot information.

### ***Store Passed***

Tooltip: Check to store all Troubleshoot information.

Default: Checked

### ***Store ASCII***

Tooltip: Appends the current Troubleshoot information to the ASCII file specified in the ASCII File field.

### ***Close***

Tooltip: Closes the Store Troubleshoot dialog

### ***ASCII File Format***

Uses Options Scan ASCII Store Delimiter and ASCII Store String Delimiter

#### **Sequence (one row per sequence)**

Board, Sequence, Serial Number, User, Date, Time, Problem, Solution, Passed/Failed

#### **Component/Net (Includes fields above) (one row per component/net)**

Component/Net, Type, Part Number, Deviation, Area, Passed/Failed

#### **Pin (Includes fields above) (one row per pin)**

Pin Name, Deviation, Area, Passed/Failed

#### **Range fields (Includes fields above) (one row per range)**

Range Name, Tolerance, Deviation, Area, Passed/Failed

---

## **Tracker Tab**

Allows control of the Tracker features and display of the signature captured.

## Tab Selected Actions

Disabled if Tracker not connected. Changes Tracker to settings on Tracker tab and if Scanner connected changes Scanner to settings on Scanner Tab.

## Voltage

Tooltip: The voltage setting of the range.

Values: .2, .4, .6, .8, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20

List limited by resistance.

Default: .2

## Resistance

Tooltip: The resistance setting of the range

Values: 10, 20, 50, 100, 200, 500, 1K, 2K, 5K 10K, 20K, 50K, 100K, Low, Med1, Med2

List limited by voltage.

Default: 10

The Tracker footswitch advances the resistance setting when the switch is closed.

## Frequency

Tooltip: The frequency setting of the range

Values: 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200, 300, 400, 500, 600, 700, 800, 900, 1K, 1.1K, 1.2K, 1.3K, 1.4K, 1.5K, 1.6K, 1.7K, 1.8K, 1.9K, 2K, 3K, 4K, 5K

Default: 200

## Pulse Width

(Only available with Tracker ProTrack connected)

Tooltip: Sets the percentage that the Pulse Generator signal is ON.

Values: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50

Default: 50

## PulseLevel

(Only available with Tracker ProTrack connected)

Tooltip: Sets the level of the Pulse Generator

Values: 0, .1, .2, .... 9.9, 10

Default: 0

## Pulse/DC

(Only available with Tracker ProTrack connected)

Tooltip: Sets the mode of the Pulse Generator

Values: Off, DC Positive, DC Negative, Pulse Positive, Pulse Negative, Pulse Bipolar

Default: Off

## Channel

Tooltip: Selects the channel of the Tracker

Values: A, B, Alt

## Real Time

Tooltip: When checked constantly updates the signature. When unchecked the signature is updated when a setting changes.

## Filter

Tooltip: Filters the signature to remove oscillations. Only available with Med1 and Med2 resistance ranges.

## Tolerance

Tooltip: Sets signature comparison tolerance.

Values: 0-99

Default: 5

## Hold

Tooltip: Temporarily stores the current signature for comparison to future signatures.

Note: Button disabled if Scanner Package is not PROBE or MULTI

## Signature Box

Display Hardware and Store signatures based on Color and Signature Options.

### ***Right Click Menu***

#### **Copy**

Tooltip: Copy the current signature box to the clip board as a as meta files. These can be pasted in to applications like WordPad, Word etc. They cannot be pasted in to paint or notepad.

#### **Data**

Tooltip: Displays the signature data dialog

### **SigAssist**

Tooltip: Displays the SigAssist window

---

## **Scanner Tab**

Allows control of the Scanner pins and display of the signature captured.

### **Tab Selected Actions**

Disabled if Scanner not connected. Changes Tracker to settings on Tracker tab and Scanner to settings on Scanner Tab.

### **Common 1**

Tooltip: The select the common pin 1 to activate

0-Number of Pins

### **Common 2**

Tooltip: Select the common pin 2 to activate

Droplist Combobox

0-Number of Pins

### **Pin**

Tooltip: Select the test pin number to activate

Values: 1-Number of Pins

Default: 1.

Pressing the Tracker footswitch increments the Pin.

**<<**

Tooltip: Select the previous pin

**>>**

Tooltip: Select the next pin

### **Package**

Tooltip: Sets the component package that controls the order the pins are scanned

Droplist Combobox

Values: BOTH, DIP, FRONT, MULTI, PROBE, SIP, DIP 2X, SIP 2X, DIP II, SIP II

Default: PROBE

Note: If PROBE or MULTI are selected, disable Common Pins, Pin and Previous/Next buttons.

## Number Of Pins

Tooltip: Sets the number of pins of the component

Droplist Combobox

Depends on package

BOTH 2-64 even

DIP 2-64 even

FRONT 1-32

MULTI 0

PROBE 0

SIP 1-64

DIP 2X 66-128 even

SIP 2X 65-128

DIP II 66-1024 Even

SIP II 65-1024

## Scan Hold

Tooltip: Scans the pins and temporarily stores all of the signatures of the Scan for comparison with future scans.

Caption changes to Cancel during this process. After completed, caption returns to Scan Hold.

## Scan

Tooltip: Scans through all of the pins of the package based on the Tracker tab settings. Disabled if Package type is PROBE or MULTI. Disabled if Clicked and scan in progress. Shows both channels of each pin if Tracker tab Channel set to Alt.

## Stop

Tooltip: Stops a scan at the current pin. Disabled if Package type is PROBE or MULTI.

Note: When clicked caption changes to Continue. If clicked again, Scan stops starts at the stopped pin and the caption changes to stop.

## Signature Box

Displays Hardware and Store signatures based on Color and Signature Options.

## *Right Click Menu*

Copy

Tooltip: Copy the current signature box to the clip board as a as meta files. These can be pasted in to applications like WordPad, Word etc. They cannot be pasted in to paint or notepad.

#### **Data**

Tooltip: Displays the signature data dialog

#### **SigAssist**

Tooltip: Displays the SigAssist window

---

## **Preview Tab**

Displays a signature from the hardware for the currently selected range on the Tree pane Ranges tab, also used for displaying signatures during Teach Height.

### **Get Signature**

Tooltip: Update the signature based on current tree selections

### **Realtime**

Tooltip: Continuously updates the signature based on current tree selections

### **Signature Box**

Displays Hardware and Store signatures based on Color and Signature Options.

### ***Right Click Menu***

#### **Copy**

Tooltip: Copy the current signature box to the clip board as a as meta files. These can be pasted in to applications like WordPad, Word etc. They cannot be pasted in to paint or notepad.

#### **Data**

Tooltip: Displays the signature data dialog

#### **SigAssist**

Tooltip: Displays the SigAssist window

---

# Signature Data Dialog

## Sequence

Tooltip: Displays the Sequence Name

Modify: Read only

## Component/Net

Tooltip: Displays the Component/Net Name

Modify: Read only

## Pin

Tooltip: Displays the Pin Name

Modify: Read only

## Range

Tooltip: Displays the Range Name

Modify: Read only

## Hardware

Tooltip: Displays the Tracker hardware used to scan the signature

Modify: Read Only

Values: 0 = "None", 1 = "External", 2 = "5100DS", 3 = "Tracker 5500", 4 = "Tracker 5300", 5 = "DSI700", 6 = "ProTrack", 7 = "ProTrack/Scanner", 8 = "ProTrack Keithley", 9 = "Tracker PXI", 10 = "Tracker 30", 11 = "Tracker 30/Scanner", 12 = "Access Tracker"

## Copy

Tooltip: Copies the data text to the clipboard

## Close

Tooltip: Closes the dialog

## Data

Tooltip: Displays the data values for each signature

Modify: Read only

Sample Format:

Scan	H1	H2	H3	H4	. . .
Current	134	140	146	151	
Hardware	134	140	146	151	

---

# SigAssist

## Fields

### *Sample layout*

SigAssist (tm)

Pin: 1                      Deviation: 10      H/W Dev: 10  
 Range: 10V100K200Hz    Area: 2345            H/W Area: 2343  
 Tolerance: 5              Learns: 2            Merges: 0

Scan	Res.	Cap.	Power	Fbd	Rbd	MaxV	MaxI
Hardware	9.98K	100pF	200mW	3.45V	.765V	8.65V	13.5mA
Current	9.98K	100pF	200mW	3.45V	.765V	8.65V	13.5mA
10/10/2004 12:23:12	9.98K	100pF	200mW	3.45V	.765V	8.65V	13.5mA

### *Pin*

Description: The pin number of the signature

### *Range*

Description: The range name of the signature

### *Tolerance*

Description: The tolerance used for comparison of the signature

### *Deviation*

Description: The largest deviation of the signature

### *Area*

Description: The sum of the deviations of the signature

### *H/W Dev*

Description: The largest deviation of the hardware signature

### *H/W Area*

Description: The sum of the deviations of the hardware signature

### *Serial #*

Description: The scan for the row of information (i.e. Hardware, Current, Date/Time)

### *Scan*

Description: The scan for the row of information (i.e. Hardware, Current, Date/Time)



***Res***

Description: The calculated resistance of the signature if detectable

***Cap***

Description: The calculated capacitance of the signature if detectable

***Power***

Description: The calculate power dissipated by the signature

***Fbd***

Description: The forward voltage the signature changes from horizontal to vertical if detectable

***Rbd***

Description: The reverse voltage the signature changes from horizontal to vertical if detectable

***Max V***

Description: The voltage value of the largest absolute value horizontal data point

***Max I***

Description: The electrical current value of the largest absolute value vertical data point

**Buttons*****Ok***

Tooltip: Closes the dialog

***Copy***

Tooltip: Copies the information to the Windows Clipboard

# Prober Pane

---

## Title

Prober = None, Frame Grabber = None

---

# Offset Tab

Allows movement of the prober and displays a camera image of the current camera position. Allows saving of the camera probe XY offset and the Z probe length. This must be performed before other prober functions are available.

## Procedure

1. Select the Camera Tab
2. Check the “Live Camera” check box.
3. Focus the camera to a board in the desired slot.
4. Select the Offset Tab.
5. Select the Slot of the prober to be used
6. Select Camera Mode
7. Move the camera over a location on the board that easily viewed for making sure the probe tip is touching the center.
8. Click Set
9. Select Prober Mode
10. Access USB and Access 2 USB users can Start the Probe Tip Live Camera to view the probe tip during the following steps. Be sure to Stop the Live Camera when finished.
11. Move the probe tip over the same position as the camera
12. Move the probe tip down until it just touches the board
13. Verify the probe tip is at the same position of the camera image
14. Click Set
15. Click Save

Repeat the steps for each slot to be used.

## Tab Selected Actions

Disabled if Prober or Camera not connected.

### Back

Tooltip: Move the camera/probe towards the back of the XY travel distance.

### Back Right

Tooltip: Move the camera/probe towards the back and to the right the XY travel distance.

### Right

Tooltip: Move the camera/probe towards the right the XY travel distance.

## Forward Right

Tooltip: Move the camera/probe towards the front and to the right the XY travel distance.

## Forward

Tooltip: Move the camera/probe towards the front the XY travel distance.

## Forward Left

Tooltip: Move the camera/probe towards the front and to the left the XY travel distance.

## Left

Tooltip: Move the camera/probe towards the left the XY travel distance.

## Back Left

Tooltip: Move the camera/probe towards the back and to the left the XY distance.

## Home

Tooltip: Move the camera/probe to the back right corner of the Prober.

## XY Travel

Tooltip: Set the distance the camera will travel in the X (left/right) and Y (back/forward) directions. The units will be in the Unit of Measure selected in options.

Default: Set in Options

## Reset

Tooltip: Set the offset to the factory default. The offset will still need to be set for the current Prober.

To set the Offset using a different location on the board, position the camera over the new location and then click Set. Click Reset to clear the down position and set the probe position to the default distance from the camera position.

## Up

Tooltip: Moves the probe up the Z Travel distance.

## Z Home

Tooltip: Moves the probe all the way up.

## Down

Tooltip: Moves the probe down the Z Travel distance.

## Z Travel

Tooltip: Select the probe up and down the Z travel distance in the Units of Measure set in options.

Default: Set in Options

## Slot

Tooltip: Select the slot from the list of the available slots for the selected Prober.

Values: Top, Middle, Bottom, Base (Base on Prober IIIc and Access 2 USB only)

## Mouse X

Tooltip: Displays the distance the mouse cursor is from the current camera X position.

Modify: Read Only

## Mouse Y

Tooltip: Displays the distance the mouse cursor is from the current camera X position.

Modify: Read Only

## Mode

Tooltip: Select Camera or Probe mode.

Values: Camera, Probe

Default: Camera

Camera image cleared and disabled when in Probe mode.

## Set

Tooltip: Sets the Camera or Probe position for calculating the camera offset.

Camera sets camera XY

Probe sets XYZ

## Save

Tooltip: Saves the selected Offset to the Registry.

## X Offset

Tooltip: Displays the X Offset (X Distance between probe and camera).

Default: 1200

Modify: Read Only

## Y Offset

Tooltip: Displays the Y Offset (Y Distance between probe and camera).

Default: 200

Modify: Read Only

## Z Offset

Tooltip: Displays the Z Offset (Z Difference from standard slot distance).

Default: 0

Modify: Read Only

## Camera Image Right Click Menu

### ***Copy***

Tooltip: Copies the image to the clip board

### ***Save***

Tooltip: Saves the image to a BMP file.

---

## Align Tab

Allows movement of the prober and displays a camera image of the current camera position. Allows Store Align by saving of two alignment point coordinates and their images for a sequence of the board. Allows Align by aligning a sequence by positioning the camera over the stored alignment points. Also, allows Auto Align to align the sequence.

The tab is disabled if there is no sequence or no offset for the slot of the current sequence.

## Store Align Procedure

1. Select Alignment 1
2. Move the camera over a location on the board to be used as Alignment point 1.
3. Click Set Alignment 2 is selected
4. Move the camera over a location on the board to be used as Alignment point 2.
5. Click Set
6. Click Save

## Align Procedure

1. Select Alignment 1
2. Move the camera over the Alignment Point 1 location on the board.
3. Click Stored Image to verify position and then click again.
4. Click Set Alignment 2 is selected
5. Move the camera over the Alignment Point 2 location on the board.
6. Click Stored Image to verify position and then click again.
7. Click Set

## Auto Align Procedure

1. Click Auto Align
2. Moves the camera over the Alignment Point 1 location on the board.
3. Adjusts the position by comparing the current image to the stored image.
4. Moves the camera over the Alignment Point 2 location on the board.
5. Adjusts the position by comparing the current image to the stored image.

## Tab Selected Actions

Disabled if database not open or Prober or Camera not connected.

### Back

Tooltip: Move the camera towards the back the XY travel distance.

### Back Right

Tooltip: Move the camera towards the back and the right the XY travel distance.

### Right

Tooltip: Move the camera towards the right the XY travel distance.

### Forward Right

Tooltip: Move the camera towards the front and the right the XY travel distance.

### Forward

Tooltip: Move the camera towards the front the XY travel distance.

### Forward Left

Tooltip: Move the camera towards the front and left the XY travel distance.

## **Left**

Tooltip: Move the camera towards the left the XY travel distance.

## **Back Left**

Tooltip: Move the camera towards the back and left the XY travel distance.

## **Home**

Tooltip: Move the camera to the back right corner of the Prober.

## **Travel**

Tooltip: Set the distance the camera will travel in the X (left/right) and Y (back/forward) directions. The units will be in the Unit of Measure selected in options.

Default: Set in Options

## **Current X**

Tooltip: Displays the current X position of the camera.

Modify: Read Only

## **Current Y**

Tooltip: Displays the current Y position of the camera.

Modify: Read Only

## **Align Point**

Tooltip: Selects Alignment Point 1 or 2

Values: <Select>, Alignment 1, Alignment 2

Default: <Select>

## **Set**

Tooltip: Sets the current alignment point position.

## **Save**

Tooltip: Save the image and the XY coordinates to the database for the current alignment point.

## **Stored Image**

Tooltip: Perform an auto alignment on the board. Only active if alignment is already stored and National Instruments Vision Deployment Module is installed.

## Auto Align

Tooltip: If activated, performs an auto alignment on the board. Only active if alignment is already stored and National Instruments Vision Deployment Module is installed.

## Mouse X

Tooltip: Displays the distance the mouse cursor is from the current camera X position.

Modify: Read Only

## Mouse Y

Tooltip: Displays the distance the mouse cursor is from the current camera X position.

Modify: Read Only

## Camera Image Right Click Menu

### *Copy*

Tooltip: Copies the image to the clip board

### *Save*

Tooltip: Saves the image to a BMP file.

---

## Teach Tab

Allows movement of the prober and displays a camera image of the current camera position. Allows storing the locations of pins. Position the camera over the end pins, of a row of pins.

This tab is disabled if there are no components or an alignment has not been performed.

## Procedure

1. Select pin 1
2. Move the camera over the location to probe pin 1
3. Click Save
4. Select the Group size (Number of pins in the row)
5. Move the camera over the location to probe the last pin of the row
6. Click Save

Repeat the steps for each row of pins on the component and for each component.



## Tab Selected Actions

Disabled if database not open or Prober or Camera not connected.

### Back

Tooltip: Move the camera towards the back the XY travel distance.

### Back Right

Tooltip: Move the camera towards the back and right the XY travel distance.

### Right

Tooltip: Move the camera towards the right the XY travel distance.

### Forward Right

Tooltip: Move the camera towards the front and right the XY travel distance.

### Forward

Tooltip: Move the camera towards the front the XY travel distance.

### Forward Left

Tooltip: Move the camera towards the front and left the XY travel distance.

### Left

Tooltip: Move the camera towards the left the XY travel distance.

### Back Left

Tooltip: Move the camera towards the back and left the XY distance.

### Home

Tooltip: Move the camera to the back right corner of the Prober.

Button

### Travel

Tooltip: Set the distance the camera will travel in the X (left/right) and Y (back/forward) directions. The units will be in the Unit of Measure selected in options. Travel is updated to the  $(\text{Group Size} - 1) * \text{Component Pin Spacing}$  if Component Pin Spacing is  $> 0$ .

Default: Set in Options

## Current X

Tooltip: Displays the current X position of the camera.

Modify: Read Only

## Current Y

Tooltip: Displays the current Y position of the camera.

Modify: Read Only

## Reset

Tooltip: Set X and Y coordinates of all pins back to zero.

## Mouse X

Tooltip: Displays the distance the mouse cursor is from the current camera X position.

Modify: Read Only

## Mouse Y

Tooltip: Displays the distance the mouse cursor is from the current camera X position.

Modify: Read Only

## Pin

Tooltip: Select the number of the pin by entering the number or using the spinner up and down arrows.

Values: 1 to number of pins

Default: 1

Scroll Box

## Save

Tooltip: Sets the current pin X and Y location position.

Enables Group Size and Set Group.

## Group

Tooltip: Set the size of the group of pins to set. If component is a DIP, DIP2X or BOTH package the group size defaults to half of the number of pins. If the component is a SIP, SIP2X, or Front package the group size defaults to the number of pins. If the component is a Multi package the group size defaults blank. If the component is a Probe package the group size is blank.

Disabled at start

## **Save**

Tooltip: Sets X and Y position of the last pin of the group. Calculates the position of the pins in the group. Updates the Pin to the pin after the last pin of the group.

Disabled at Start. Disable Group Size and Set Group.

## **Camera Image**

### **Camera Image Right Click Menu**

#### ***Copy***

Tooltip: Copies the image to the clip board

#### ***Save***

Tooltip: Saves the image to a BMP file by displaying the standard windows Save As window.

---

## **Teach Height Tab**

Allows movement of the probe to set the Z positions. The positions include sequence up, sequence down, component up and pin down.

This tab is disabled if there are no components or an alignment has not been performed.

### **Procedure**

1. Access USB and Access 2 USB users can Start the Probe Tip Live Camera to view the probe tip during the following steps. Be sure to Stop the Live Camera when finished.
2. Select Sequence Up
3. Move probe down to the lowest position that clears all components on the board
4. Click Save
5. Select Sequence Down
6. Move probe down to the position that compresses the probe tip on the board
7. Click Save
8. Optionally set a Component Up position for each component
9. Optionally set a Pin Down position for each pin of each component

### **Tab Selected Actions**

Disabled if database not open or Prober or Camera not connected.

## **Tab Lost Focus**

Move Prober to Z Home.

## **Up**

Tooltip: Moves the probe up the Travel distance.

## **Home**

Tooltip: Moves the probe all the way up.

## **Down**

Tooltip: Moves the probe down the Travel distance.

## **Z Travel**

Tooltip: Set the probe up and down travel distance in the Units of Measure set in options.

Default: Set in Options

## **Current Z**

Tooltip: Displays the current Z position.

Modify: Read Only

## **Sequence Z Up and Down**

Tooltip: Select the Z Up or Down mode. The stored position is displayed. And the probe moves to the position.

Default: <Select>

## **Sequence Z Up and Down Position**

Tooltip: Displays the current Up or Down position for the Sequence.

Modify: Read Only

## **Sequence Z Up and Down Move**

Tooltip: Move the probe to the Sequence Up or Down position.

## **Sequence Z Up and Down Save**

Tooltip: Sets the Sequence Up or Down position to the current Z position.

## **Component Z Up Position**

Tooltip: Displays the current Up position for the Component from the database.

Modify: Read Only

## Component Z Up Move

Tooltip: Moves to the probe to the current Component Up position.

## Component Z Up Save

Tooltip: Sets the Up for the component to the current position.

## Pin Z Down

Tooltip: Selects the pin use when setting the down position. Moves the probe tip to the pin.

Default: <Select>

Modify: Read Only

## Pin Z Down Position

Tooltip: Displays the current Z Down position for the Pin from the database.

Modify: Read Only

## Pin Z Down Move

Tooltip: Moves the probe to the Pin Down position.

## Pin Z Down Save

Tooltip: Sets the Down for the pin to the current Z position.

## Check

Tooltip: Moves the probe down on each of the pins of the Component/Net that have Scan enabled. Displays the signature of the pin on the Preview tab of the Signature Pane. The range is set to the first range of the pin.

## Cancel

Tooltip: Cancels the Check mode and lifts the probe.

## Save All Comp/Net Pins

Tooltip: Sets the Z Down position for all the pins of the current component/net to the current Z position.

---

## ReAlign Tab

The ReAlign tab is used to select different alignment points and/or change location of where the board is placed in the Prober.

This tab is disabled if an alignment has not been performed.

## Procedure

1. Select Alignment 1
2. Move the camera over a location on the board position to be used as Alignment point 1. This may be the current alignment point 1 or a new position.
3. Click Set
4. Select Alignment 2
5. Move the camera over a location on the board position to be used as Alignment point 2. This may be the current alignment point 1 or a new position.
6. Click Set
7. Click Save

## Tab Selected Actions

Disabled if database not open or Prober or Camera not connected. After Warning Message move the Prober to XYZ home. Current X and Y updated.

### Back

Tooltip: Move the camera towards the back the XY travel distance.

### Back Right

Tooltip: Move the camera towards the back and right the XY travel distance.

### Right

Tooltip: Move the camera towards the right the XY travel distance.

### Forward Right

Tooltip: Move the camera towards the front and right the XY travel distance.

### Forward

Tooltip: Move the camera towards the front the XY travel distance.

### Forward Left

Tooltip: Move the camera towards the front and left the XY travel distance.

### Left

Tooltip: Move the camera towards the left the XY travel distance.

## Back Left

Tooltip: Move the camera towards the back and left the XY distance.

## Home

Tooltip: Move the camera to the back right corner of the Prober.

Button

## Travel

Tooltip: Set the distance the camera will travel in the X (left/right) and Y (back/forward) directions. The units will be in the Unit of Measure selected in options.

Default: Set in Options

## Current X

Tooltip: Displays the current X position of the camera.

Modify: Read only

## Current Y

Tooltip: Displays the current Y position of the camera.

Modify: Read only

## Align Point

Tooltip: Selects Alignment Point 1 or 2

Values: <Select>, Alignment 1, Alignment 2

Default: <Select>

## Set

Tooltip: Sets the current alignment point position. Also captures image.

## Save

Tooltip: Changes the alignment points to the new locations. Updates all of the pin locations to reposition the board if Update Locations is selected.

## Stored Image

Tooltip: Display the original image saved for the current alignment position.

## Update Locations

Tooltip: Pin locations are updated during ReAlign to remove an offset when board is aligned.

Default: Checked

## Mouse X

Tooltip: Displays the distance the mouse cursor is from the current camera X position.

Modify: Read only

## Mouse Y

Tooltip: Displays the distance the mouse cursor is from the current camera X position.

Modify: Read only

## Camera Image

### Camera Image Right Click Menu

#### *Copy*

Tooltip: Copies the image to the clip board

#### *Save*

Tooltip: Saves the image to a BMP file by displaying the standard windows Save As window.

---

## Panelize

Allows movement of the prober and displays a camera image of the current camera position. Allows creation of a new sequence by selecting the back right corner of the original panel, the back right corner of the new panel and the amount of rotation.

This tab is disabled if there are no components or an alignment has not been performed.

## Procedure

1. Select the **Sequence** that you want to panelize.
2. Align **Sequence**.
3. Click on **Panelize** tab.
4. Move to right back corner of the current board.
5. Press the **Set** button for “Current Origin”.
6. Move to the right back corner of the board to be added. Note if the board is in a different orientation you must use the same corner as was selected in the current board. (For example if the board is rotated 180 degrees the right rear corner would be the left front corner on the added board).
7. Press the **Set** button for “Add Origin”.



8. Select Rotation of the board to be added 0, 90, 180 or 270 degrees.
9. Press the **Panelize** button.
10. A new sequence has been created for the new board. (The new Sequence file name will be incremented by numeric or alphabetical depending on last character of sequence name). Also if rotated the Stored images for the new sequence are not rotated but alignments still need to be done to the same points.

## Tab Selected Actions

Disabled if database not open or Prober or Camera not connected. After Warning Message move the Prober to Z home. Current X and Y updated.

### Back

Tooltip: Move the camera towards the back the XY travel distance.

### Back Right

Tooltip: Move the camera towards the back and right the XY travel distance.

### Right

Tooltip: Move the camera towards the right the XY travel distance.

### Forward Right

Tooltip: Move the camera towards the front and right the XY travel distance.

### Forward

Tooltip: Move the camera towards the front the XY travel distance.

### Forward Left

Tooltip: Move the camera towards the front and left the XY travel distance.

### Left

Tooltip: Move the camera towards the left the XY travel distance.

### Back Left

Tooltip: Move the camera towards the back and left the XY distance.

### Home

Tooltip: Move the camera to the back right corner of the Prober.

Button

## Travel

Tooltip: Set the distance the camera will travel in the X (left/right) and Y (back/forward) directions. The units will be in the Unit of Measure selected in options.

Default: Set in Options

## Current X

Tooltip: Displays the current X position of the camera.

Modify: Read Only

## Current Y

Tooltip: Displays the current Y position of the camera.

Modify: Read Only

## Current Origin X

Tooltip: Display the X coordinate of the back right corner of the current board on the panel.

Default: 0

Modify: Read only

## Current Origin Y

Tooltip: Display the Y coordinate of the back right corner of the current board on the panel.

Default: 0

Modify: Read only

## Current Origin Set

Tooltip: Sets X and Y position of the back right corner of the current board on the panel.

## Add Origin X

Tooltip: Display the X coordinate of the back right corner of the board to add on the panel.

Default: 0

Modify: Read only

## Add Origin Y

Tooltip: Display the Y coordinate of the back right corner of the board to add on the panel.

Default: 0

Modify: Read only

## Add Origin Set

Tooltip: Sets X and Y position of the back right corner of the board to add on the panel.

## Rotation

Tooltip: Select 0, 90 , 180 or 270 degrees of rotation

Default: 0

## Panelize

Tooltip: Creates a sequence identical to the current sequence except the XY data is shifted and rotated according to the settings on this tab. The name of the sequence is incremented to create the new name.

## Mouse X

Tooltip: Displays the distance the mouse cursor is from the current camera X position.

Modify: Read only

## Mouse Y

Tooltip: Displays the distance the mouse cursor is from the current camera X position.

Modify: Read only

## Camera Image

### Camera Image Right Click Menu

#### *Copy*

Tooltip: Copies the image to the clip board

#### *Save*

Tooltip: Saves the image to a BMP file by displaying the standard windows Save As window.

---

## Camera Tab

The Camera tab is used to move the camera around the probing area at look at the images. Use the Motor and Limit check boxes to control the state of the motor power and limit switches for diagnostic purposes.

## Tab Selected Actions

Disabled if Prober or Camera not connected. After Warning Message move the Prober to Z home. Current X and Y updated.

### Back

Tooltip: Move the camera towards the back the XY travel distance.

### Back Right

Tooltip: Move the camera towards the back and right the XY travel distance.

### Right

Tooltip: Move the camera towards the right the XY travel distance.

### Forward Right

Tooltip: Move the camera towards the front and right the XY travel distance.

### Forward

Tooltip: Move the camera towards the front the XY travel distance.

### Forward Left

Tooltip: Move the camera towards the front and left the XY travel distance.

### Left

Tooltip: Move the camera towards the left the XY travel distance.

### Back Left

Tooltip: Move the camera towards the back and left the XY distance.

### Home

Tooltip: Move the camera to the back right corner of the Prober.

### Travel

Tooltip: Set the distance the camera will travel in the X (left/right) and Y (back/forward) directions. The units will be in the Unit of Measure selected in options.

Default: Set in Options

### Current X

Tooltip: Displays the current X position of the camera.

Modify: Read only

## **Current Y**

Tooltip: Displays the current Y position of the camera.

Modify: Read only

## **X Motor**

Tooltip: Check box that controls the X Motor power.

Default: Checked

## **Y Motor**

Tooltip: Check box that controls the Y Motor power.

Default: Checked

## **X Limit**

Tooltip: Check box that controls the X Limit switch.

Default: Unchecked

## **Y Limit**

Tooltip: Check box that controls the Y Limit switch.

Default: Unchecked

## **Live Camera**

Tooltip: Check box that controls Live Camera Image

Default: Unchecked

## **Mouse X**

Tooltip: Displays the distance the mouse cursor is from the current camera X position.

Modify: Read only

## **Mouse Y**

Tooltip: Displays the distance the mouse cursor is from the current camera X position.

Modify: Read only

## Camera Image Right Click Menu

### **Copy**

Tooltip: Copies the image to the clip board

### **Save**

Tooltip: Saves the image to a BMP file by displaying the standard windows Save As window.

---

## Probe Tab

Allows control of the probe tips for troubleshooting movement issues.

### **Tab Selected Actions**

Disabled if Prober or Camera not connected. After Warning Message move the Prober to Z home. Current Z updated.

### **Tab Lost Focus**

Move Prober to Z Home.

### **Up**

Tooltip: Moves the probe up the Travel distance.

### **Home**

Tooltip: Moves the probe all the way up.

### **Down**

Tooltip: Moves the probe down the Travel distance.

### **Z Travel**

Tooltip: Select the probe up and down travel distance in the Units of Measure set in options.

Default: Set in Options

### **Current Z**

Tooltip: Displays the current Z position.

Modify: Read only

### **Slot**

Tooltip: Select the slot from the list of the available slots for the selected Prober.

Values: None, Top, Middle, Bottom, Base (based on Prober Connected)

Default: None or slot of selected sequence

## **Z Motor**

Tooltip: Check box that controls the Z Motor power.

Default: Checked

## **Z Limit**

Tooltip: Check box that controls the Z Limit switch.

Default: Unchecked

# Image Pane

Image - CAD tab appends the CC filename loaded. File tab appends the image file loaded.

---

## **CAD Tab**

Allows control of the CAD CC file created during import for viewing the circuit board layout.

### **Component**

Tooltip: Select a CAD component from the list. Selects the Component in the CAD image and populates the Pin drop list. Zoom to component when selected.

### **Pin**

Tooltip: Select a pin of a CAD component from the list. Selects the pin in the CAD image, selects the net of the component and populates the Connected list. Zoom to the net.

### **Net**

Tooltip: Select a net of a CAD image from the list. Selects the net in the CAD image and populates the Connected list. Zoom to net when selected.

### **Via**

Tooltip: Select a via of a CAD image from the list. Selects the via in the CAD image, selects the net of the via and populates the Connected list. Zoom to the net.

## Connected

Tooltip: List of component pins, vias and test points connected to the currently selected net. Clicking an item selects the item in the appropriate droplist.

## Zoom +

Tooltip: Zoom the CAD image to the next zoom in level.

## Zoom -

Tooltip: Zoom the CAD image to the next zoom out level.

## Zoom Board

Tooltip: Zoom the CAD image to the extents of the board.

## Zoom Window

Tooltip: Activates the zoom window cursor on the CAD image. Click and drag the cursor to create the window size and click to zoom.

## Flip Board

Tooltip: Turns over the CAD image to view from the opposite side of the current view.

## Options

Tooltip: Displays the CAD Options dialog.

## Clear

Tooltip: Clears the highlighting of all of the selected items in the CAD image.

## CAD Image

Clicking on pins, components, net traces or vias will update the combo boxes on the left.

---

# Image Tab

Create a board image by positioning the camera over the back right and forward left corners of the board. Once the image is created it can be clicked on to move the probe to the select position on the board.

## Procedure

1. Click on **Align** tab.
2. Move the camera to right back corner of the current board.
3. Press the **Set Back Right** button on the **Image** tab.



4. Click on **Align** tab.
5. Move the camera to front left corner of the current board.
6. Press the **Set Front Left** button on the **Image** tab.
7. Press the **Create Image** button on the **Image** tab.

## Level

Board is always selected.

## Set Back Right

Tooltip: Use the Prober pane to position the Prober at the back right corner then click this button.

## Set Front Left

Tooltip: Use the Prober pane to position the Prober at the front left corner then click this button.

## Create Image

Tooltip: This button is enabled after the Back Right and Front Left positions have been set. Clicking the button causes the Prober to scan the area between the Back right corner and the front right corner taking images and creating on large image.

## Cancel

Tooltip: This button cancels the Create Image process.

## Zoom In

Tooltip: Zooms the image to the next zoom In level.

## Zoom Out

Tooltip: Zooms the image to the next zoom Out level. The Board level is the maximum zoom out level.

## Image Control

Left clicking on the image move the Prober camera to the position clicked if the sequence is aligned.

## Image Right Click Menu

### *Delete*

Tooltip: Remove image from the database.

### ***Copy***

Tooltip: Copy the image to the Windows clipboard.

### ***Save As***

Tooltip: Save the image as a BMP file.

---

## **View PCB Tab**

Displays a pixel for each pin that has XY coordinates and a cross for each alignment point of the sequence.

### **Drawing Right Click Menu**

#### ***Refresh***

Redraws the image to apply any changes made to the positions.

#### ***Copy***

Copy the image to the Windows clipboard.

#### ***Save As***

Save the image as a BMP file.

---

## **File Tab**

Displays a BMP, GIF, JPG, JPEG, PNG, ICO, EMF or WMF graphics file loaded from a file.

### **Open File...**

Tooltip: Open graphics file to display. Defaults to the last file opened.

---

## **Live Camera Tab**

Displays live video from a camera.

Create a board image by positioning the camera over the back right and forward left corners of the board. Once the image is created it can be clicked on to move the probe to the select position on the board.

### **Procedure**

1. Click the **Select** button.
2. Select the camera (Not the Sensoray 2250).
3. Change any settings as needed.
4. Click the on **Start** button.

5. Click the on **Stop** button.

## Select

Tooltip: Select the camera and setting for the video display.

## Start

Tooltip: Start display of the video.

## Stop

Tooltip: Stop display of the video.

## Copy

Tooltip: Copy the image to the Windows clipboard.

## Setup

Tooltip: Zooms the image to the next zoom In level.

## Save BMP

Tooltip: Write a snapshot of the video to a BMP file.

---

# CAD Options Dialog

## General Tab

Contains options for displaying pin numbers, net names and the types of items that are selected when clicking on the CAD image.

## Graphics Classes Tab

Contains options to control the display of different types of graphical classes that are displayed on the CAD image.

## Insert Types Tab

Contains options to control the display of different types of Insert types that are displayed on the CAD image.

## Layers Tab

Contains options to control the display of different types of layers that are displayed on the CAD image.

## Buttons

### ***Ok (Temporary)***

Closes the dialog and saves the changes for this session of the program only.

### ***Cancel***

Closes the dialog without saving any changes.

### ***Save (Permanent)***

Closes the dialog and saves the changes in the Windows registry for use every time the program is run.

### ***Defaults***

Sets all of the options back to the factory default settings.

# Tester Pane

To start the program in Tester mode add /Tester to the command line of the shortcut that starts Huntron Workstation software (i.e. "C:\Program Files\Huntron Workstation\Workstation.exe" /Tester). Tester mode disables all features of the software except those selected in under Options Test.

Selecting the Pane from the Window menu closes the other panes except the Signature pane is enabled in Options Test.

Auto PDF troubleshoots are written to the My Documents/Huntron/Troubleshoots folder.

## File Open

Tooltip: Opens and board database file and closes the current file.

## Sequence

Tooltip: List of the sequences contained in the board

Modify: Not displayed if not activated in Options (Sequence specified on command line)

## Scan List

Tooltip: If checked, scans the list specified in Scan List Path when the start button is clicked.

## **Scan List Path**

Tooltip: The path to the scan list file to be used for the scan.

## **Scan List Browse**

Tooltip: Displays a File Open dialog to select the file path to be placed in the Scan List Path text box.

## **Serial Number**

Tooltip: Enter the serial number of the board to be scanned

## **Operator**

Tooltip: Enter the name of operator running the scan

## **Start**

Tooltip: Display the time the scan was started

## **Elapsed**

Tooltip: Displayed the elapsed time during the scan

## **Estimated**

Tooltip: Displayed the estimated time to scan the sequence

## **Remaining**

Tooltip: Display the Elapsed time subtracted from Estimated time

## **Results**

Tooltip: Display the results of the scan

## **Scan Counter Counter**

Displays the number of component being scanned

## **Scan Counter Count**

Displays the number of components to be scanned

## **Start**

Tooltip: Start the sequence scan

## Stop

Tooltip: Stop the sequence scan

## Continue

Tooltip: Start a stopped sequence scan

## Troubleshoot

Tooltip: Displays the Troubleshoot Report dialog.

---

## Requirements

Windows 2000 SP4+ , Windows XP SP2+ or Windows Vista

.Net Framework 2.0+

Video 1024x768+ 16bit+

512MB RAM (1GB for Vista)

## Tips and Hints

---

### CMOS Troubleshooting

There are certain assumptions made when performing comparison testing using Trackers in general. The assumption is that two pins on a given board will always produce the same signature given the same stimulus (i.e., a certain range). When testing certain CMOS ICs, this can be invalid.

Capacitors are often connected in parallel with CMOS ICs to reduce noise which can cause one of two problems to occur. First, the signature may be slow in settling to the steady state. Second, the horizontal portion of the chair pattern can move upwards as a result of a charging effect. This charging effect is not a repeatable process.

**Note:** Match the testing time to the settling time.

**Note:** Eliminate the charging effect by putting a suitable resistance across the power supply.

---

# Command Line Parameters

Command Line Parameters are accepted for the convenience of starting the software in different modes.

**MDBFilePath** is the file path of the MDB board file to be opened.

**SequenceName** is the case sensitive name of the Sequence to be selected.

**ComponentNetName** is the case sensitive name of the component or net to be selected.

**/Tester** starts the software in Tester mode. The Tester pane is displayed and other items are enabled based on the setting of the Test tab in Tools->Options.

**/Control** starts the software in Remote Control mode. This parameter for use with the optional Remote Control feature of the software.

**/ControlNM** starts the software in Remote Control mode without minimizing the window. This parameter for use with the optional Remote Control feature of the software.

## Example:

Workstation.exe "MDBFilePath" "SequenceName" "ComponentNetName" /Tester

**Note:** Be sure to include the "" around the parameters as shown.

---

# Foot Switch

An optional Foot Switch or other switch can be connected to a ProTrack, TrackerPXI or Tracker Model 30. See the Tracker's User's Manual for connection instructions. When the switch is connected and the Tracker is connected in Huntron Workstation, the following uses are available:

## Signature Pane Scan Tab Connect Component Dialog

Pressing the Tracker footswitch clicks the Ok button.

## Signature Pane Scan Tab Connect Pin Dialog

Pressing the Tracker footswitch clicks the Ok button.

### **Signature Pane Tracker Tab**

The Tracker footswitch advances the resistance setting when the switch is closed.

### **Signature Pane Scanner Tab**

Pressing the Tracker footswitch increments the Pin.

---

## **Select Range**

### **A Brief History**

The basic Huntron Tracker technology was developed in 1976 using the concept of Analog Signature Analysis (ASA). This concept involves applying a current limited AC voltage signal to an electronic device. The current flowing between the device terminal and its reference terminal is then plotted against the applied voltage signal in an XY fashion. The resulting plot is called an analog signature. ASA involves comparing the signatures of a known good device to the signatures of a suspect device. A faulty device would most likely have a signature that is significantly different from that of a good device. This technique is used to troubleshoot electronic circuitry without applying power to the circuit.

### **What is a Range?**

The characteristics of a signature can be changed by modifying the applied AC voltage, resistance and frequency. These three characteristics of the applied signal create a "range". Two different test ranges may display different signatures for the same device. A device fault may show up in one test range but not in another. The ASA technique for troubleshooting also involves choosing the appropriate range(s) for maximum fault coverage.

### **Voltage**

This factor is the amplitude or peak voltage of the applied signal. The sine wave voltage affects the response of solid state devices. Tracker voltages are from 200 milliVolts to 20 Volts peak.

In general the voltage should be set to give a signature about half as wide as the horizontal axis of the graticule.

TTL type integrated circuits are best viewed with 20 Volts.

LS type TTL and older MOS circuits are best viewed with 10 to 15 Volts.

For most other circuits the 3 Volt range works well.

For zener diodes the voltage should be twice the zener diode breakdown voltage.



For capacitors, resistors and inductors in-circuit, use 200mV to mask the effects of connected solid state devices.

### **Resistance**

The resistance has the most effect on the shape of the signature. The resistance limits the current flowing through the device. Tracker resistance's are from 10 ohms to 100K ohms.

It is best to use two ranges with different resistance values to show a wider spectrum of faults.

For edge connectors, discrete components and filter caps the lower resistance ranges are suggested. These ranges allow the verification of true shorts.

For logic circuits use a resistance of 1K and 20K. Avoid using

the Low resistance ranges on ICs - this will display excessive manufacturing differences.

### **Frequency**

This factor is the number of cycles that a sine wave makes in one second. By changing the frequency of the sine wave, the ellipse pattern response of capacitors and inductors becomes wider or narrower. Tracker sine wave frequencies are from 20Hz to 5KHz.

In general, when viewing capacitive or inductive signatures, adjust the frequency for the roundest signature. Smaller capacitors and inductors require higher frequencies.

If you are not able to display a satisfactory signature by adjusting frequency, adjust the resistance.

The recommended default frequency is 50/60 Hz. - this gives the best response for filter caps and power related failures.

For MOS integrated circuits, a frequency of 1KHz minimizes loops in the vertical leg of certain signatures. This can make the chair pattern more distinct.

---

## **Tracker Range Selection Guide**

**Note:** These ranges are suggested ranges only. Connection to different devices in-circuit and different component manufacturing techniques may require the use of different ranges. See Select Range for more information.

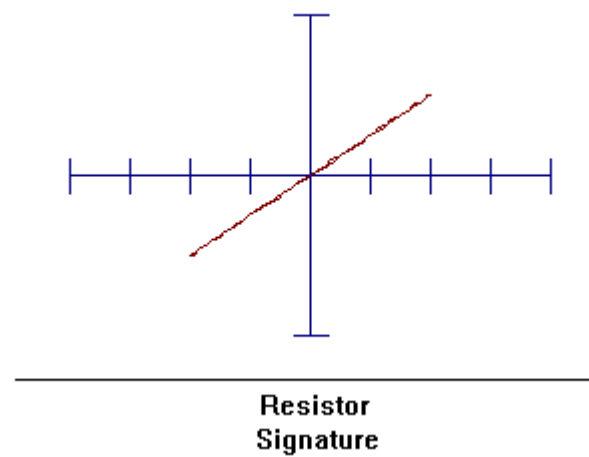
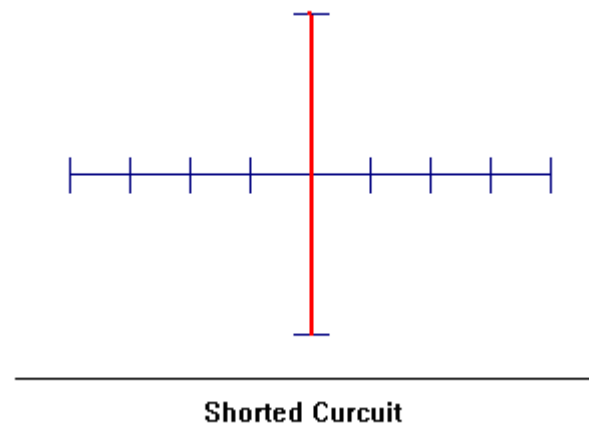
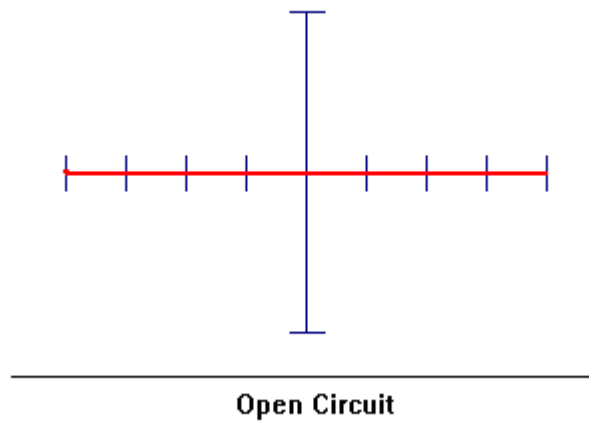
Component	Range
<b>Resistors in Ohms</b>	
10	200mV, 10 Ohm, 200Hz
20k	200mV, 20k Ohm, 200Hz
100k	200mV, 100k Ohm, 200Hz
<b>Capacitors</b>	
.001uF	200mV, 100k Ohm, 2kHz
.01uF	200mV, 100k Ohm, 200Hz
10uF	200mV, 1k Ohm, 60Hz
100uF	200mV, 50 Ohm, 60Hz
<b>Inductors</b>	
1.5mH	200mV, 50 Ohm, 2kHz
<b>Transistors</b>	
2N3906	20V, 100k Ohm, 60Hz
<b>Integrated Circuits</b>	
7404 (TTL)	15V, 1kOhm, 200Hz
	<i>10V, 50 Ohm, 200Hz</i>
74LS04 (LS)	10V, 1k Ohm, 200Hz
	<i>10V, 50 Ohm, 200Hz</i>
74S04 (S)	20V, 20k Ohm, 200Hz
	<i>20V, 100k Ohm, 200Hz</i>
74HC04(HC)	3V, 1k Ohm, 60Hz
	<i>3V, 10k Ohm, 60Hz</i>
Z80 (CPU)	10V, 10k Ohm, 60Hz
	<i>10V, 100k Ohm, 60Hz</i>
TI 486 (CPU)	3V, 10k Ohm, 60Hz
	<i>3V, 1k Ohm, 60Hz</i>
MC14069	10V, 10k Ohm, 60Hz
	<i>10V, 1k Ohm, 60Hz</i>
74F245 (F)	3V, 10k Ohm, 60Hz
	<i>3V, 1k Ohm, 60Hz</i>
MS62256A	10V, 10k Ohm, 60Hz
	<i>10V, 100k Ohm, 60Hz</i>

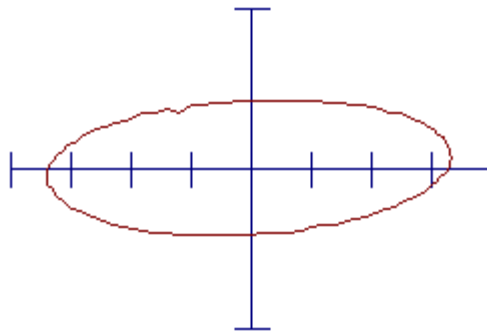
**Note:** For wider fault coverage it is advisable to use two ranges for ICs. The second suggested range above is in *italics*.

---

## Sample Signatures

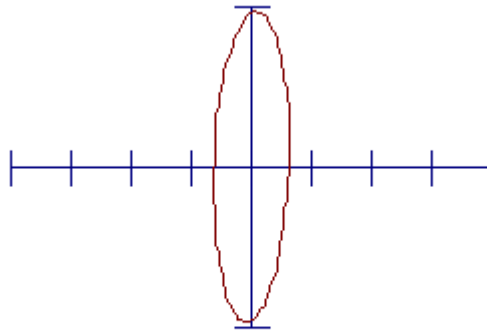
The following are several sample signatures from different types of components.





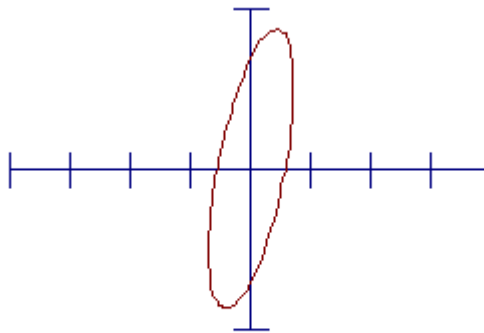
---

**Capacitor Signature**



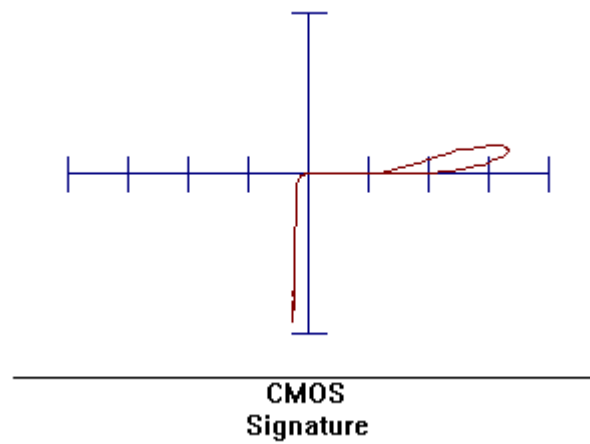
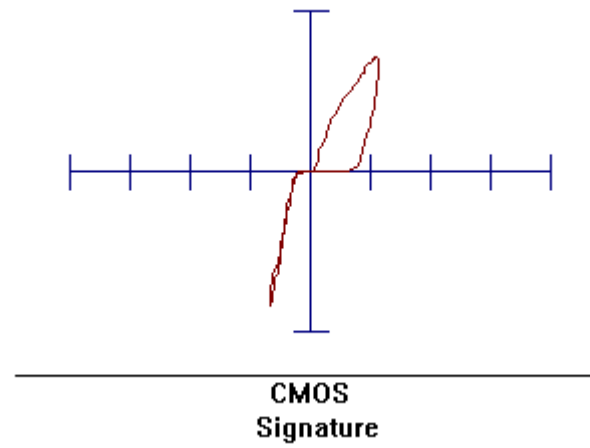
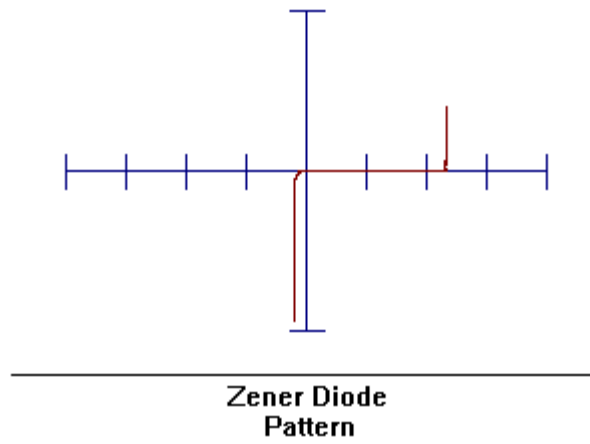
---

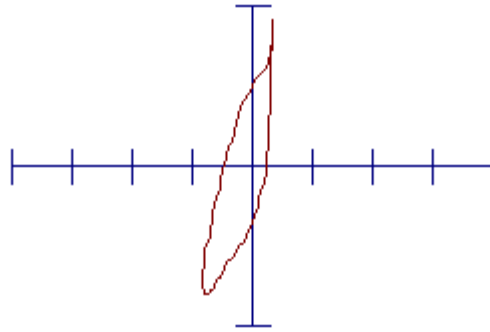
**Capacitor Signature  
without Leakage**



---

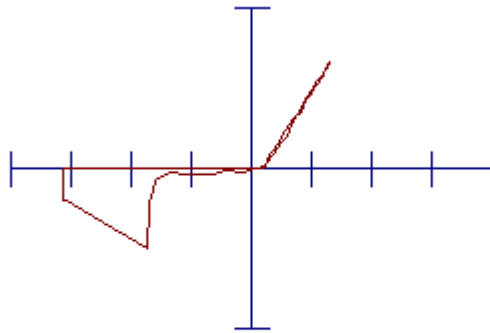
**Capacitor Signature  
with Leakage**





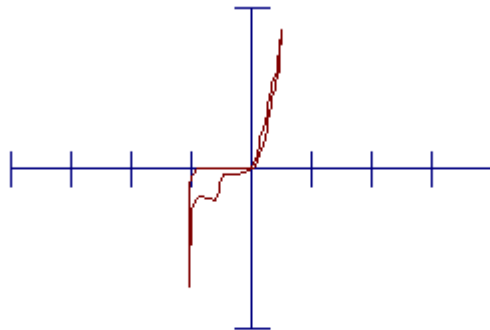
---

**Composite  
Signature**



---

**Composite  
Signature**



---

**Composite  
Signature**

---

## Features No Longer Supported

### Hardware

Tracker 5100DS

Tracker 5500

RP388

Electrim ISA Camera

Electrim PCI Camera

Prober External Mode

Prober I

Prober II (Not Prober IIc)

Prober III (Not Prober IIIc)

ProTrack Parallel Interface under Windows Vista.

### Files

HNT files created by Sun-Up

DOS databases

### Windows

Windows 95

Windows 98

Windows ME

Windows NT

---

## GeoTest Switch Card Configuration

Install the GeoTest Switch card and install the drivers. Get the card functioning using the appropriate GeoTest GX#### Panel program.

In Tools->Options->Hardware select GeoTest for the Scanner selection. Click the GeoTest Setup button.

Use the GeoTest Setup Dialog to configure the cards. Select the Switch Card type and the Slot number used in the GX#### Panel program. Then select Test to use the relay card for test pins or Common to use the relay card for Common pins. The Pins field will display the pins controlled by the card.

**For example:**

First Switch Card GX6125, Slot 6, Test = Test Pins 1-25

Second Switch Card GX6138, Slot 7, Test = Test Pins 26-63

**GX6125 Wiring:**

Connect CH1 CO - CH25 CO all together and connect to the Signal jack of the Tracker. Use CH1 NO – CH25 NO as pins 1-25.

**GX6138 Wiring:**

Connect CH1B, CH2B, CH3B etc. all together and connect to the Signal jack of the Tracker. Use CH1A – CH38A as pins 26-63.

---

## NI Switch Executive Configuration

Use the National Instruments Switch Executive and Switch Card documentation to configure the Switch cards to be used with Switch Executive.

In National Instruments Measurement & Automation Explorer create a NI Switch Executive Virtual Device called “HuntronSwitchConfiguration”. In this configuration create test pin routes prefixed with “HuntronTest” and add the pin number to for each route without a space. To create Common pin use the “HuntronCommon” prefix and add the pin number to for each route without a space.

**For example:**

The First switch used is an NI PXI-2503 with driver setup of “Topology:2503/1-Wire 48x1 Mux”. The first route is called HuntronTest1 and it connects IVI Channel com0 to IVI Channel ch0. The rest of the routes connect com0 to ch1 – ch47. This creates test pins 1-48.

The Second switch card used is a Pickering 40-524-022 with a driver setup of “Model:40-523-022;”. The first route is called HuntronTest49 and it connects IVI Channel y1 to IVI Channel x1. The next 43 routes connect y1 to x2-x44. This creates test pins 49-98. The next route is called HuntronTest99 and it connects IVI Channel y2 to IVI Channel x1. The next 43 routes connect y2 to x2-x44. This creates test pins 99-136.

**PX-2503 Wiring:**

Connect COM0+ to the Signal jack of the Tracker. Use CH1+ to CH23+ for pins 1-24 and CH1- to CH23- for pins 25-48.

**40-523-022 Wiring:**

Connect Y1.1 and Y2.2 together and connect to the Signal jack of the Tracker. Use X1.1 to X44.1 for pins 49-98 and X1.2 to X44.2 for pins 99-136.







# Glossary of Terms

## Analog Signature Analysis

Analog Signature Analysis is a power-off troubleshooting technique that uses a sinewave stimulus to generate the voltage (V) vs. current (I) characteristics of an unpowered device. The VI characteristic is called an analog signature. The signature is then displayed on a CRT or computer monitor. Voltage is displayed horizontally and current is displayed vertically. An open circuit is thus represented by a horizontal line and a short circuit which draws the maximum current is represented by a vertical line.

## Area

The sum of all the deviation values of the digitized points used in comparison. See Compare Resolution for more information.

## ASA

An abbreviation for Analog Signature Analysis.

## Back

The portion of the chair pattern rising vertically from the seat. This represents forward current. See Chair Pattern for more information.

## Board

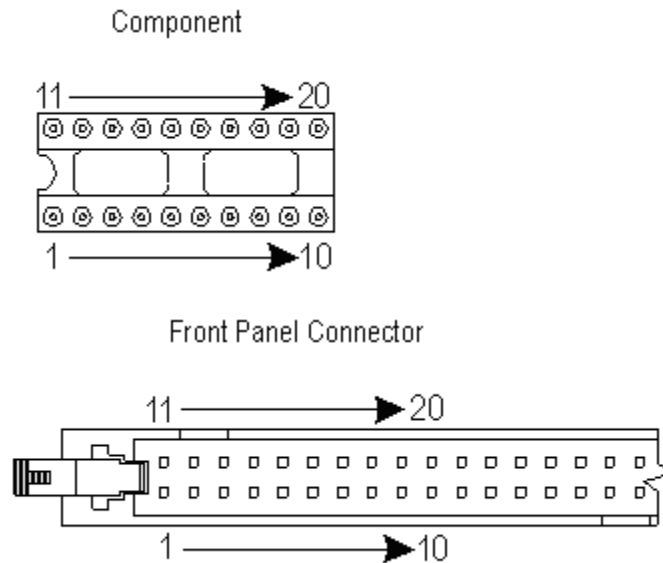
An electronic circuit board printed circuit board (PCB) or printed circuit assembly (PCA). The Board is located on the menu directly below the System on the Main Window.

## Bill of Materials (BOM)

The report of materials used, including replacement part number, supplier, etc.

## Both

Both package scans pins in two parallel rows on opposite sides of the package. Both rows are scanned in the same direction starting at the pin 1 end of the component.



## Browse

Enables the user to select a file/path from the existing directories and drives.

## Calibration

Adjusting instruments to allow data to be shared with other instruments.

## Camera

An optical device which allows the viewing of a circuit board through the computer monitor. The Camera is mounted on the right side of the Z Axis mechanism and consists of an image sensor, miniature lens, and optical filter.

## Camera Offset

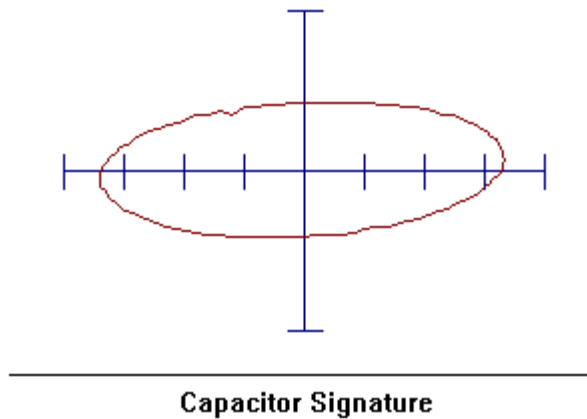
The difference between the XY position of the camera and the prober Spring Probe Tip.

Note: When setting the prober offset, the probe tip should be lowered to the board so the tip barely makes contact with the board.

## Capacitive

A signature or portion of a signature that is round or elliptical caused by the voltage and current being out of phase.

A Capacitor Signature is shown below.



## Capacitor

An electric component designed to store electricity. Capacitors are widely used in circuits for producing time delays and filtering electrical oscillations. Capacitors and inductors alike cause a phase shift between voltage and current producing a circle or elliptical signature directly proportional to the amount of capacitance or inductance.

## Chair

The signature pattern common to IC's and zener diodes that resembles a chair. The lower vertical part is the leg, the horizontal part is the seat, and the upper vertical part is the back. See Sample Signatures for example.

## Charging Effect

A condition where the seat of a chair pattern moves up and stabilizes over a short period of time.

## Circuit

An arrangement of electronic components which are connected in such a way that some function is performed.

## CMOS

Complementary Metal-Oxide Semiconductor. A wide range of IC's are CMOS. They are known for low power consumption making them useful in battery-operated devices. They are susceptible to damage from static electricity. CMOS integrated circuits are built with capacitors causing their signatures to display a loop in the back of the chair pattern.

## Combo Box

The combination of a text box and a drop-down list box, allowing the user to enter the name of an item in the list box or select it from the list.

## **Common**

An electrical connection/wire which is at the same or common potential. The common is typically grounded to the negative terminal of a power supply and serves as a reference point for a component.

## **Common Pin**

The reference pin for the component. The common pin is typically the negative power supply or ground pin. See Edit Pins dialog for more information.

## **Compare Priority**

Sets the scan compare to one of three priority types Same Serial, Merge or All Serials.

## **Component**

A piece of electronic hardware that has a particular purpose, such as a resistor or transistor.

## **Composite Signature**

Any combination of the four basic signature patterns. A signature composed of resistive, capacitive, inductive, and/or semi-conductive characteristics.

## **CRT**

The Cathode Ray Tube used to display signatures on the Tracker.

## **Current**

The vertical component of a signature. Shorting the probe causes a maximum current flow and displays a vertical line on the CRT.

## **Database**

Collection of the data about the system, board, section and component levels.

## **Degeneration**

The effect of a time or electrical stress on a component, causing a change in its ideal signature. This is a fault common to capacitors and solid-state junctions and results from such things as noise, loss of capacitance, resistance, etc.

## **Dev**

An abbreviation for Deviation.

## Deviation

The deviation is the amount that the value of one data point varies from the learned points outside of the tolerance.

## Diagnostics

Methods for troubleshooting instruments that are not working correctly.

## Dialog

This refers to area on the computer screen surrounded by a border. Dialogs are used to allow entry of or displaying information. Also known as a window.

## Difference

This is one of the two signature orders. When in this mode, signatures are displayed from the most to least different in the most to least different range. Also see Numeric.

## Diode

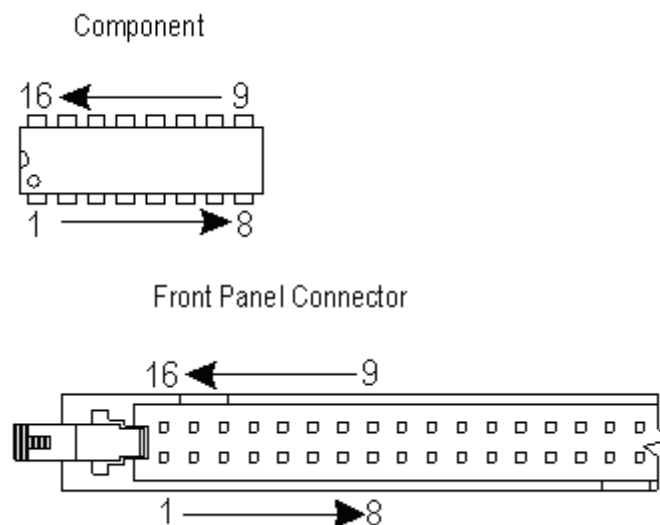
A component which allows current to flow through it in one direction only. Diodes are used in power supplies to convert or rectify alternating current to direct current.

## Diode Pattern

See Diode.

## DIP

A DIP stands for Dual In-line Package and has its pins in two parallel rows on opposite sides of the package. The pins are scanned from pin 1, down the row across the other row and back up that row to the last pin.



## DIP2X

The DIP2X is an enhanced Dual In-line Package (DIP) having 66-128 pins.

## Discrete Component

A component that is a single device with a single purpose such as a resistor, capacitor, or diode.

## Field

A text box used for entering characters into the software.

## File

A group of data stored on a disk. The File on the Main Window displays the File menu.

## Filter

An algorithm that removes oscillations from certain types of signatures.

## Flagging

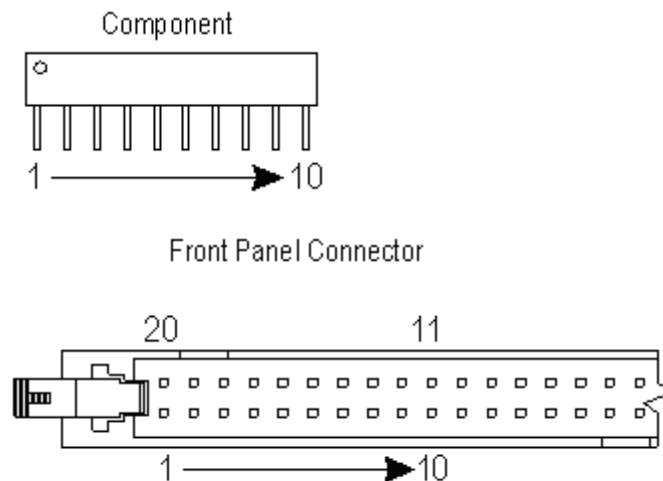
Oscillations in a signature, usually located on the back of the chair pattern.

## Flutter

A signature or part of a signature oscillating. Flutter is common in capacitors and solid-state junctions.

## Front

The Front package type has a single row of pins. This is the row with pin 1 and is scanned from pin 1 to the last pin of the row.





## **Gap**

A missing section of a signature.

## **Graticule**

The set of horizontal and vertical lines behind the signatures used to approximate turn-on voltages and aid in the comparison of signatures.

## **Hardware**

The Huntron instruments connected to the computer.

## **Height**

Sets the up and down position of the probe. These must be set before Scanning section or component using the prober.

## **Home**

The far back right corner of the prober. Also, the probe in its highest up position.

## **Inductive**

A signature or portion of a signature that is this round or elliptic caused by voltage and current being out of phase.

## **Inductor**

An electric component used for filtering. Also, found in transformers

## **Instructions**

The instructions for tree items are designed to help the user scan and test boards. Instructions can inform technicians of things such as the correct orientation of a board or where to connect the common test lead.

## **Leg**

The vertical portion of a chair pattern extending downward from the seat.

## **Limit Switch**

Switches on the prober that are used when homing to prevent the prober from hitting the stops.

## **List Box**

A box displaying a list of items. If the number of items on the list exceeds the visible area, use the scroll bar to move up or down.

## Max. # of Samples

This field sets the upper limit of the number of times the hardware will attempt to capture an analog signature during a scan. Normally, the hardware will capture the analog signature on the first try. However, under certain conditions, the hardware may repeat capturing to insure the analog signature is stable and accurate. If the number of samples reaches the maximum number entered here, then the hardware uses the last sample for input.

## Merge

To store more than one signature and to create upper and lower comparison boundaries (min\max). The highest and lowest digitized point values that are created as signatures are merged. These are used to allow points with values in between to pass comparisons.

## Mils

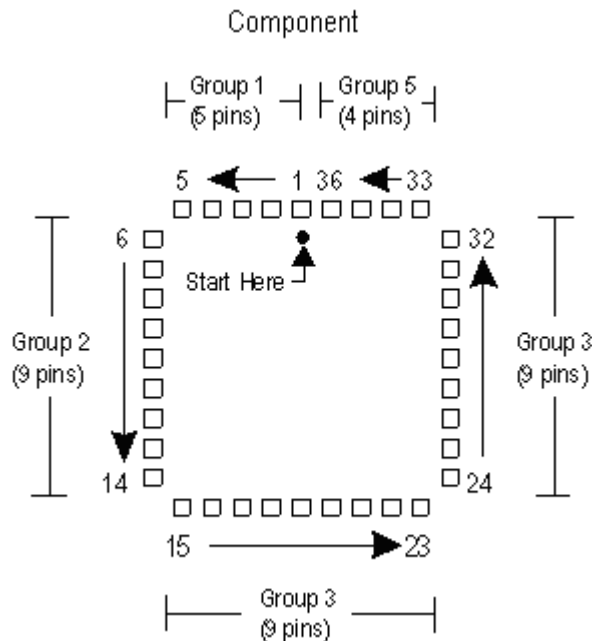
1 mil = 1 thousandth of an inch. 1 inch = 1000 mils. Equivalent to .0254 millimeters (mm).

## MMs

Millimeter. 1mm = .001 meter. Equivalent to .0394 inches (39.4 mils).

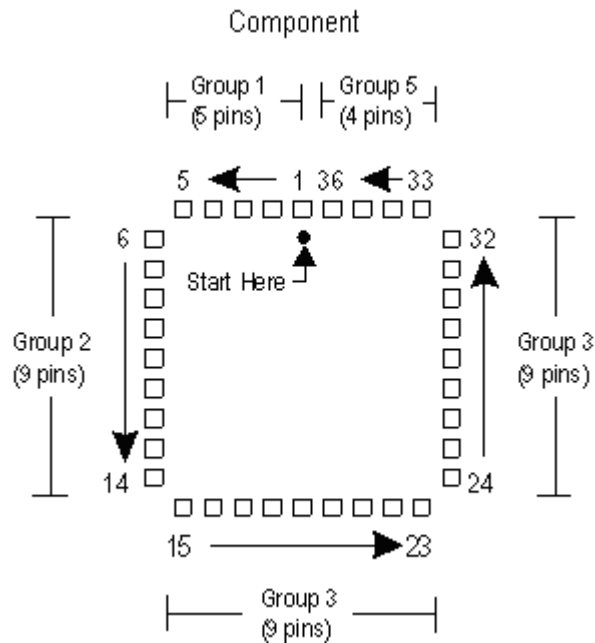
## Multi

Packages containing multiple groups of pins. Multi package types can support up to 512 pins.

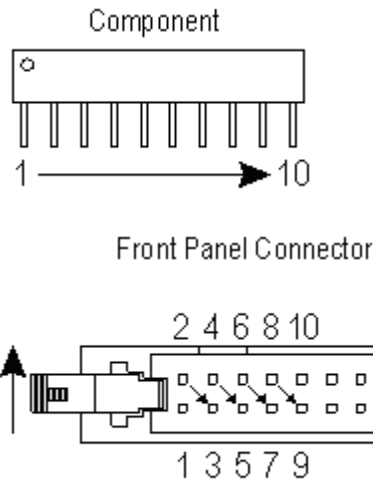


## MultiSIP

Packages containing multiple groups of pins. Multi package types can support up to 512 pins.



Scanner Common Pins are controlled in a SIP fashion.



## Offset

The calculated difference between the camera and probe tip and the probe tip to the board.

## **Package**

This controls how component pins are scanned. Packages include DIP, SIP, Probe, Multi, Both, or Front, DIP2X or SIP2X.

## **Path**

The drive and directories specifying to location of a file.

## **PCB**

Printed Circuit Board. A circuit board that has the electrical connections and component identification printed on it.

## **Pin**

The test point or lead of a component.

## **Pitch**

Distance between component pins, pin spacing.

## **Probe**

Probe is a component package type that disables all relays and prompts for connection of each pin. Mostly used with Huntron Probes. The Foot Pedal connected to the Tracker can activate the Scan Pin during the Probe Connection dialog.

## **Probe Tip**

The spring loaded test probe used with a prober to make contact with test points on the circuit board. Various probe styles are available depending on the component being tested.

## **Prober**

A Huntron Robotic Test System that automates the testing of specified points on a printed circuit board. Probing hardware includes the following: Prober Ic, Prober IIc, Prober IIIc and Access.

## **Prober Board Mounting**

The mounting adapters and slots on the inside walls are used to hold the board in place.

## **Pulse Generator**

ProTrack I outputs produce a DC voltage level or a square wave pulse.

## **Radio Button**

A small round button that is black when is selected and clear when unselected, used to indicate an option has been selected.

## **Range**

The test range applied to the component under test. A range consists of a combination of voltage, resistance and frequency.

## **Re-Alignment**

Changing the section alignment points to new positions.

## **Real-Time**

Continuous signature update mode.

## **Relay**

Hardware component used for test signal routing consists of switch contacts and a coil.

## **Resistive**

A linear response characterized by the angular trace/signature indicating voltage drop and current flow.

## **Resistor**

An electrical component designed to resist electrical current flow.

## **Resolution**

The minimum distance that the probe tip is capable of moving.

## **Revision**

Indicator of the design version of a board.

## **Same Serial**

Compare the latest scan to stored signatures with the same serial name.

## **Sample**

A sample consists of a double reading of each signature. After processing for glitches and oscillations, the two readings are compared and must be similar or that sample is unstable.

## **Scan**

Connect to pins of a component and digitized signatures

## **Pins Then Range**

Scans all of the pins of the component in the first range. Then scans all pins in the next range until all ranges have been scanned.

## **Ranges Then Pin**

Scans all of the ranges of the first pin. Then scans all of the ranges of the next pin until all pins have been scanned.

## **Seat**

The horizontal portion of a chair pattern.

## **Sequence**

A group of components on the circuit board.

## **Serial Number**

The alphanumeric number of the actual board being scanned.

## **Settling Effect**

A condition where the back of a chair pattern will stabilize over a short period of time.

## **Sharp Corner**

The sharp angle in the signature when a device conducts current.

## **Short**

An electrical connection of very low resistance allowing large amounts of current to flow.

## **Side**

The component or the solder side of the board.

## **SigAssist™**

SigAssist™ provides a tool tip of signature values.

## **Signal**

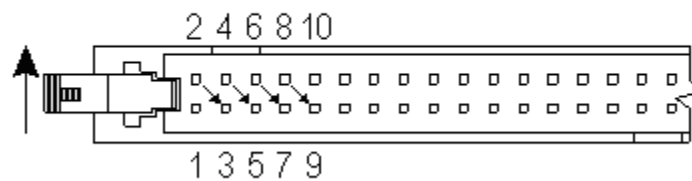
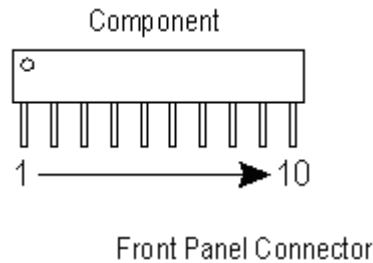
The analog input from the component pin.

## Signature

The VI characteristics of each component pin/range.

## SIP

Single In-Line Package. A component package having a single line of pins, such as a connector or resistor pack.



## SIP2X

The SIP2X is an enhanced Single In-line Package (SIP) having 65-128 pins.

## Soft Corner

A curve rather than an sharp angle in the signature where a device conducts current and voltage. On some devices this is an indication of leakage. See Sharp Corner for more information.

## STAR

Smart Tracker Active Range (STAR) are designed to limit the maximum power of any test range available at the ProTrack I's output terminals. This hardware feature ensures that test range parameters cannot be set to any combination that might overpower the component under test. The ProTrack I's STAR feature is always enabled and can only be modified by the MaxV setting.

## Store

Saves information, signatures, and values to the disk.

## System

The collection of board, section and component information.

## **Teach**

This refers to translating the physical position of the probe to actual distances from the home position for each test point in the section.

## **Technical Information**

The hardware specifications and Huntron technical information for Huntron instruments is located in the user manuals or can be obtained from Huntron Technical Support.

## **Tolerance**

The margin within which a component is still considered equivalent when being tested.

## **Tracker**

Huntron testing hardware that performs power off Analog Signature Analysis.

## **Tracker Signature Analysis**

Tracker Signature Analysis is a power-off troubleshooting technique that uses a sinewave stimulus to generate the voltage (V) vs. current (I) characteristics of an unpowered device. The VI characteristic is called an tracker signature. The signature is then displayed on a CRT or computer monitor. Voltage is displayed horizontally and current is displayed vertically. An open circuit is thus represented by a horizontal line and a short circuit which draws the maximum current is represented by a vertical line.

## **Travel**

How far the probe will move when movement buttons are pressed.

## **Tree**

A structured group of systems, boards, sections, and components used to store all of the information about a board that is to be scanned.

## **Troubleshoot**

A report showing all of the Different pins and components of the current scan.

## **Troubleshooting**

Searching for the cause of failures based on test equipment results and symptom descriptions.

## **TSA**

An abbreviation for Tracker Signature Analysis.



## UECA

The Huntron Universal Edge Connector Adapter (UECA) makes edge connector testing using certain Trackers quick and easy. The UECA was designed to simplify the interfacing of printed circuit board (PCB) edge connectors to 64 pin compatible Trackers. This has proved to be a fast and efficient test technique for many circuit boards. The UECA interfaces to the test hardware through the 64 pin flat cable. The UECA has four open ended, standard edge connector sockets with the following pin spacing: 0.156", 0.150", 0.125", and 0.100". The open ends allow for easy insertion of any length edge connector. Four convenient templates are provided on the UECA to help you determine the spacing of your PCB edge connector. Just match your test PCB edge connector to the appropriate pattern.

## Voltage

The horizontal portion of a signature. An open circuit (a horizontal line) represents maximum voltage.

## V/I

V = Voltage and I = Current, another name for ASA testing.

## Waveform

Displays the component voltage and current signals used to derive an analog signature.

## X Axis

The axis that runs left to right that the probe travels.

## Y Axis

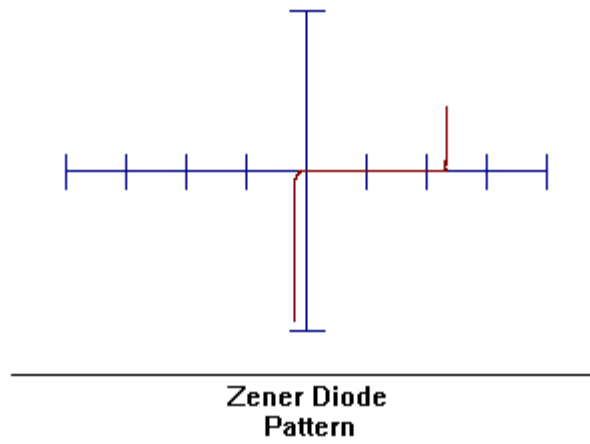
The axis that runs front to back that the probe travels.

## Z Axis

The axis that is used for the probe height.

## Zener Pattern

A pattern similar to a chair pattern although opposite in polarity. Corners indicate actual operating voltages. Common zener diodes will display a chair pattern that has a vertical break-over point at .6 volts (the conduction voltage of a silicon device) and a second break-over point at the rated voltage for the diode



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