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ADE Stimuli Assignment Quick Help

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ADE Stimuli Assignment Quick Help

The Stimuli Assignment form is used to define stimuli, manage them and assign them to your design. The following sections provide more details:

How do I assign stimuli to design components?

To assign stimuli, ensure that the authoring mode is disabled by selecting the *Off* option in the *Stimuli Authoring* section.

All the design components, such as pins, buses, and global nets, are automatically fetched and are visible as a list in the *Pin Assignments* section. To assign a stimulus to one or more of these components, follow the steps:

1. Select the stimulus.
2. Select one or more input pins in the *Pin Assignments* section.

> You can choose to select the *Show Unassigned Pins* check box in the toolbar of the *Pin Assignments* section to display the pins that do not have any stimuli assigned to them.

3. Click  in the toolbar of *Pin Assignments* section.

   Alternatively, right-click one or more pins in the *Pin Assignments* section and choose *Assign Stimuli to Selected Pins*.
4. Validate the status in the *Stimuli* column for the selected input pin to be updated to **Assigned**.

> You should run the simulation after the pin assignments are complete.

Related Topics

- How do I assign stimuli to bus bits?
- How do I assign stimuli to global nets?
- How do I know if the pins have been successfully assigned?
- How do I enable or disable pins?
- How do I check a pin (with or without stimulus) in the schematic?

How do I assign stimuli to bus bits?

You can either assign the same stimulus to all the bus bits or different stimuli on different bus bits.
To assign the same stimulus to bus bits:

1. Select a stimulus.
2. Select a bus in the Pin Assignment section.
3. Click  in the toolbar of the Pin Assignments section.

To assign different stimuli on the bus bits, perform the following steps for each stimulus:

1. Select a stimulus.
2. Select the required bus bit.
3. Click  in the toolbar of the Pin Assignments section.

4. Repeat these steps for each bus bit.

> ⓘ You can choose to leave a bus bit unassigned only if it is disabled. To disable an unassigned bus bit, right-click the bus bit and select *Disable Selected Bus Bits*.

How do I assign stimuli to global sources?

Before assigning stimuli, always remember that global sources should be assigned only to stimuli with a DC source.

Follw these steps to assign stimuli to global sources:

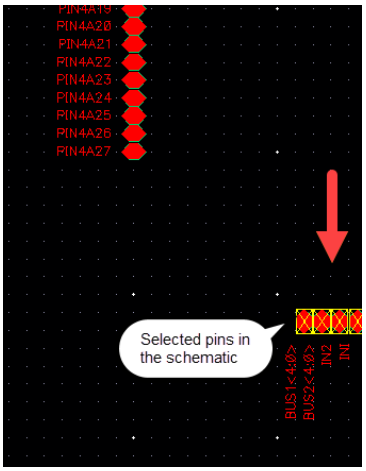
1. Select *Globals* in the *Pin Assignments* toolbar.
2. Select a stimulus for an input signal in the *Stimuli Authoring* section.
3. Select a source from the list box in the *Pin Assignments* section.
4. Click  .

   Alternatively, select the stimulus, and then, right-click the source. Select *Assign Stimuli to Selected Pins*.

How do I check a pin (with or without stimulus) in the schematic?

All the design components, such as pins, buses and global nets, are automatically fetched and are visible as a list in the *Pin Assignments* section. You can filter the pins according to the stimuli assignment and visually ascertain a pin in the schematic by selecting it in the *Pin Assignments* section and clicking  in the *section* toolbar.

The pins are highlighted in the schematic.

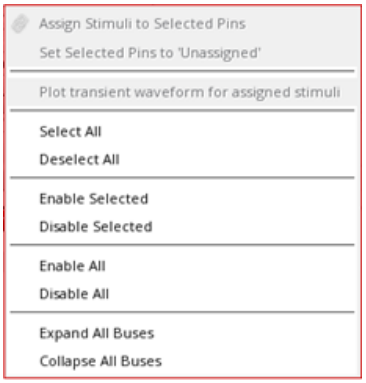


How do I enable or disable pins?

Select the *Enable* check box in the *Pin Assignments* section to enable a pin.

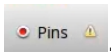
While you are working on pin assignments, you can also use the commands in the context menu in the *Pin Assignments* section to perform various actions such as the following

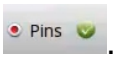
- Enable/disable all pins
- Enable/disable selected pins
- Expand/collapse bus bits
- Select/deselect all pins



How do I know if the pins have been successfully assigned?

While assigning pins, whenever you click OK in the *Pin Assignments* section, it checks whether all the enabled pins have been assigned stimuli. If unassigned pins are found, a warning message is generated suggesting that there are incomplete stimuli assignments in the design, which can lead to errors while generating a netlist. Also, there are signs representing warning or success near Pins or Globals in the *Pins Assignment* toolbar.

- *Pins*: A warning icon appears when there are enabled pins in the design that do not have assigned stimuli 

. When all pins are assigned stimuli, a green tick appears next to pins 

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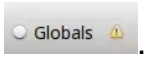
- *Globals*: A warning icon appears when there are enabled global sources in the design that do not have assigned stimuli 

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> The *Pins Assignment* section shows the `total number of pins assigned` / `total number of pins in the design`. **It also indicates the number of disabled pins**. These numbers also include the bus bits in your design.

Related Topic

How do I check a pin (with or without stimulus) in the schematic?

How do I create stimuli?

Before creating stimuli, ensure that the prerequisites are met.

To create a new stimulus, follow the steps:

1. Enable authoring by selecting the *On* option in the *Stimuli Authoring* section.
2. Enter the stimulus name as an alphanumeric value.
3. Select the type of stimulus from a drop-down list next to the stimulus name field.

4. Select an option, *I* or *V*, to specify whether it is a current or voltage source.
5. Define the values of stimulus parameters.
6. Select the *Show* option in *Preview Transient Waveforms*.
7. To preview the waveform, click *Apply*.

A short simulation runs. The new stimulus entry is added in the *Stimuli Authoring* section.

You can also choose to create stimuli by either importing stimuli or creating a copy of stimuli to edit them.

> ⓘ All the stimuli definitions are saved at location — `<Lib-name>/<Cell-name>/<View-name>/namedStimuli/stimuli.xml`.

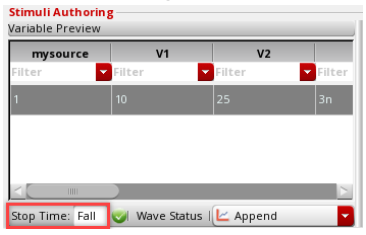
Related Topics

- How do I preview a stimuli waveform?
- How do I use design variables in a stimuli definition?
- How do I enable Stop Time for a waveform generation?
- What are the prerequisites of creating an input stimuli?

How do I enable Stop Time for a waveform generation?

While creating a stimulus, select *Show in Preview Transient Waveforms* to enable Stop Time. It defines the maximum time limit for generating the waveform for a stimulus. It can be set in the following ways:

1. Enter a valid value in *Stop Time*.
2. Use a design variable in *Stop Time.* It uses the value defined in the variable.



> The Stimuli Assignment form displays an error message if you try to enter a design variable whose units do not match with this field.

3. Set the environment variable `stopTime`. The default value of this environment variable is 1n.

> If *Stop Time* is defined in the form, it overrides the default value.

Help Topic

Environment Variable: stopTime

How do I import stimuli?

To import stimuli from other cellviews:

1. In ADE Explorer, choose *Session — Import*.
2. Select the Library, Cell and View to import their stimuli.
3. Select the check box, *Stimuli*.
   The imported stimuli definitions are appended to the existing stimuli definitions in your view.

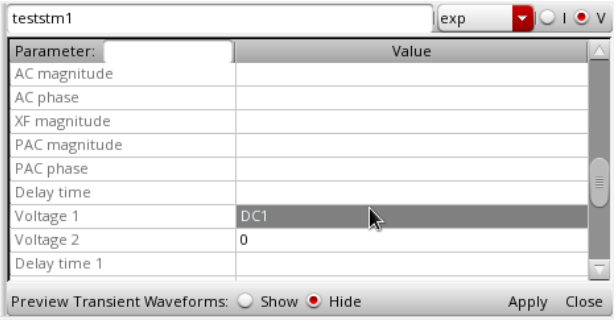
> You can import other information from the design, including the stimuli assignments, while importing stimuli in Explorer. These overwrite the current assignments.

Related Topic

- How do I generate waveforms of the imported stimuli?

How do I use design variables in a stimuli definition?

To use a design variable in a stimuli definition, specify the variable name in the Value column of the respective parameter of a stimulus definition.



You can also use an expression containing design variables to define a parameter value in stimuli. For example, DC voltage can be set to DC1+V1.

What are the prerequisites for creating an input stimuli?

For an input stimuli, your top-level schematic should contain the following:

- Input pins for the signals
- Global name on a signal (such as vdd!) to use power stimuli
- All sources, for stimulus or for power supply, from the analogLib library
- refLibs property in the design, if the sources are located in a different library

How do I preview a stimuli waveform?

You can preview a waveform for:

1. Stimuli with waveforms already generated - These stimuli were either imported or created earlier.
2. For newly created stimuli.

For scenario 1, you can preview the stimuli waveform in authoring disabled mode by performing either of the actions:

- Select one or more stimuli and click . It opens Virtuoso Visualization and Analysis XL and

shows the waveform previews of the stimuli.

- Select a stimulus, right-click, and choose *Plot transient waveform*.

For scenario 2, first create a stimulus, and then follow the steps:

1. Select the *Show* option in *Preview Transient Waveforms*. It opens the *Variable Preview* table. This table shows all the variable values and any sweeps.
2. You can select one or more rows from the Variable Preview table to preview waveforms using these variables.
   Learn more about selecting multiple sweeps in design variables
3. Click Apply.
   It generates a Virtuoso Visualization & Analysis XL preview of the selected combination of variables.

If the wave status for a stimulus appears a warning (Wave Status), consider editing it and regenerating the waveform.

Related topics

- Is it possible to see waveforms for the same stimulus with different parameter values?
- How do I generate waveforms of the imported stimuli?
- How do I check the stimuli waveform generation status?
- Can I plot waveforms for stimuli already assigned to pins?

Can I plot waveforms for stimuli already assigned to pins?

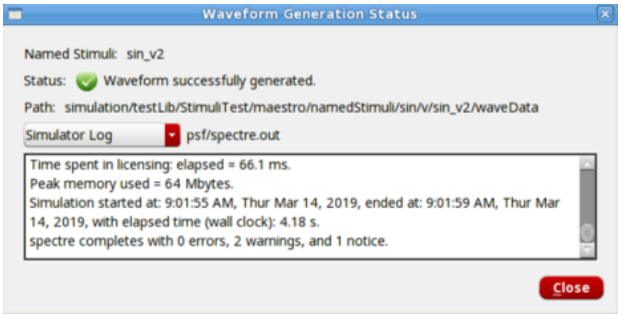
Yes, you can plot the waveforms for the stimuli already assigned to pins (including bus bits and global sources), to verify that you have assigned the correct stimuli to the correct pins. Perform the following actions:

1. Select one or more assigned pins in the *Pins Assignment* section.

2. Right-click and choose *Plot transient waveform for assigned stimuli*.

How do I check the stimuli waveform generation status?

Ensure that the *Authoring* mode is `On` and *Preview Transient Waveforms* is set to `Show` in the *Stimuli Authoring* section. Then, click *Wave Status* at the bottom of the *Stimuli Authoring* section. This opens a message box, *Waveform Generation Status.* You can select one of the following options from the drop-down list: *Simulator Log*, *Graphical Stimuli File*, or *Variables (ParamSet).*



Help topic

Waveform Generation Status

How do I generate waveforms of the imported stimuli?

The stimuli imported from another design may not have waveforms or have waveforms not synchronized. You can generate the waveforms for such stimuli in two ways:

1. To generate a waveform for a stimulus, enable authoring by selecting the *On* option in the *Stimuli Authoring* section.
2. Select *Show in Preview Transient Waveforms*.
3. Select one or more rows in the *Variable Preview* table and click *Apply.*

4. To generate waveforms for all imported stimuli, run the *maeStmGenerateWaveforms()* command in the CIW.

Is it possible to see waveforms for the same stimulus with different parameter values?

Yes, to do this, when you create a stimulus and generate its waveform previewed in Virtuoso Visualization XL, then follow the steps:

1. Make changes in the same stimulus definition.
2. Select *Append* in the *Wave Status* drop-down list.

Click *Apply* to run the simulation.
The new waveform is appended in the Virtuoso Visualization XL plot.

Managing Stimuli

You can manage the existing stimuli by editing, removing, or deleting them.

Related Topics

- How do I edit stimuli?
- How do I create the copy of a stimulus?
- How do I display removed stimuli?
- How do I remove or delete stimuli?
- How do I restore removed stimuli?

How do I create the copy of a stimulus?

You can create a new stimulus by copying an existing one by performing the following steps:

1. Ensure that the authoring mode is enabled by selecting the `On` option in the *Stimuli*

Authoring section.

2. Select the source stimulus in the *Stimuli Authoring* section.
3. Rename the stimulus.
4. If required, modify the parameter values.
5. To preview its waveform, select *Show in Preview Transient Waveforms*.
6. It opens the *Variable Preview* table that shows all the parameters and their respective values set in the stimulus.
7. Select one or more rows in the Variable Preview table and click *Apply.*

A new stimulus is created and its name is added to the list of available stimuli.

How do I display removed stimuli?

To display the list of removed stimuli, right-click anywhere in the *Stimuli Authoring* section and choose *Display Removed Stimuli*.

> ⓘ Ensure that the authoring mode is disabled by selecting the `Off` option in the *Stimuli Authoring* section while performing the above action.

The *Stimuli Authoring* section is replaced by *Removed Stimuli*, which lists the removed stimuli in red. After reviewing the list of stimuli in this list, you can perform the following two actions:

- Restore removed stimuli
- Permanently delete stimuli

How do I edit stimuli?

To edit an existing stimulus:

1. Enable Authoring by selecting the *On* option in the *Stimuli Authoring* section.
2. Modify the values of the stimulus parameters.

   > ⓘ The stimulus name, type, and source cannot be modified.

3. Select one or more rows in the Variable Preview table and click 

to generate a Virtuoso Visualization & Analysis XL preview of the selected stimulus.

If the waveform is generated successfully after editing the stimulus, it shows a green tick near the Wave Status, otherwise, it shows a warning sign.

How do I remove or delete stimuli?

To remove a stimulus, right-click the stimulus name in the *Stimuli Authoring* section and choose *Remove*. You can perform the same action for multiple stimuli by selecting more than one stimulus.

> ⓘ If a stimulus is assigned to a pin, the option to remove it from the form is disabled.

To review all the removed stimuli, right-click in the Stimuli Authoring section and choose *Display Removed Stimuli*.

Always remember that there is a safety net to retrieve the stimuli that are removed. The `stimuliRemovedNames.xml` contains information about the removed stimuli that have not yet been deleted from the disk.

Deleting stimuli implies that the removed stimuli is permanently cleaned from the disk. To delete stimuli, follow the steps:

1. Right-click the *Stimuli Authoring* section and select *Display Removed Stimuli.*
   It opens the *Removed Stimuli* section.
2. Right-click the stimulus name in the *Removed Stimuli* section and select *Clear - Delete from disk*.

Related Topic

How do I restore the removed stimuli?

How do I restore the removed stimuli?

To restore the removed stimuli, follow the steps:

1. Ensure that the authoring mode is disabled by selecting the `Off` option in the *Stimuli Authoring* section.
2. Select one or more stimuli names.
3. Right-click and choose *Restore Stimuli to Original Repository.* It fetches all the information from `stimuliRemovedNames.xml` file.
4. To see the restored stimuli, right-click and choose *Display Available Stimuli*.

Related Topic

How do I display removed stimuli?