Setting Up Probes

Online Help
Notices

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Setting Up Probes—At a Glance

The Setup>(Logic Analyzer Module)>New Probe menu lets you define the probes used and the connections made to a device under test. The FPGA dynamic probe lets you probe internal FPGA signals.

"Using General Purpose Probes" (in the online help)
"Using the Xilinx FPGA Dynamic Probe" (in the online help)
"Using the FPGA Dynamic Probe for Altera FPGAs" (in the online help)
"Using the Embedded Dynamic Probe" (in the online help)
"DigRF Acquisition Probe" (in the online help)
"InfiniBand Analysis Probe" (in the online help)
"LinkoIF Acquisition Probe" (in the online help)
"Memory Expansion Probe" (in the online help)
"MIPI Acquisition Probe" (in the online help)
"PCI Express Analysis Probe" (in the online help)
"Serial ATA/SAS Analysis Probe" (in the online help)
"Using the Enhanced Turbo Trigger Tool" (in the online help)

See Also

- If your probe isn't listed (see page 7)
- To define new probe types (see page 9)
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When "setting up general purpose probes" (in the online help) or "mapping FPGA debug pins for the FPGA dynamic probe" (in the online help), you are given a list of probes to choose from. If your probe doesn't appear in the list, you can update the list by downloading the latest probe definitions from the web and installing them into the proper location.

1. Download the latest probe type definitions file from the web at "http://www.agilent.com/find/probe-definitions".

2. Copy the downloaded Probes.xml file to the directory:

   <Drive letter>:\<Install directory>\AddIns\Agilent\For example:

   C:\Program Files\Agilent Technologies\Logic Analyzer\AddIns\Agilent\  

3. Restart the Agilent Logic Analyzer application to cause the new Probes.xml definitions file to be read.

See Also
- To define new probe types (see page 9)
1 If your probe isn't listed
You can define new probe types by editing the Probes.xml file.

1. Make a backup copy of the Probes.xml file.

   The Probes.xml file is located in the directory:

   <Drive letter>:\<Install directory>\AddIns\Agilent\n
   For example:

   C:\Program Files\Agilent Technologies\Logic Analyzer\AddIns\Agilent\n
2. Edit the Probes.xml file.

   For more information on the Probes.xml file format, see Probe Type Definition XML Format (see page 10).
To define new probe types

Probe Type Definition XML Format

You can define new probe types by editing the Probes.xml probe type definition file. XML elements for the probe type definition file have the following hierarchy:

```
<GenericProbes> (see page 12)
 <GenericProbe> (see page 10)
   <Pods> (see page 17)
     <Pod> (see page 17)
   <PinMaps> (see page 16)
     <PinMap> (see page 15)
```

See Also
- To define new probe types (see page 9)

<GenericProbe> Element

The <GenericProbe> element contains the pod and pin map definitions for a particular probe.

Attributes

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ConnectorType</td>
<td>'40PinConnector' or '90PinConnector'</td>
</tr>
<tr>
<td>Type</td>
<td>'string' (general description of the probe)</td>
</tr>
</tbody>
</table>

Children

This element can have the following children: <Pods> (see page 17), <PinMaps> (see page 16).

Parents

This element can have the following parents: <GenericProbes> (see page 12).

Example

```
<GenericProbe
  Type='E5390A 34-ch single-ended Soft touch connectorless probe'
  ConnectorType='90PinConnector'>
 <Pods>
   <Pod SecondaryName='Odd' />
   <Pod SecondaryName='Even' />
 </Pods>
 <PinMaps>
   <PinMap Pin='A1' Pod='Odd' Channel='1' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Left' />
   <PinMap Pin='A2' Pod='Odd' Channel='3' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Left' />
   <PinMap Pin='A4' Pod='Odd' Channel='5' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Left' />
   <PinMap Pin='A5' Pod='Odd' Channel='7' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Left' />
   <PinMap Pin='A7' Pod='Odd' Channel='9' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Left' />
   <PinMap Pin='A8' Pod='Odd' Channel='11' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Left' />
 </PinMaps>
```
To define new probe types

<PinMap Pin='A10' Pod='Odd' Channel='13' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Left' />
<PinMap Pin='A11' Pod='Odd' Channel='15' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Left' />
<PinMap Pin='A13' Pod='Odd' Channel='16' IsClockChannel='True' PinType='Signal' PolarityType='Differential' DifferentialType='NegativeDifferential' DifferentialPartnerPin='B13' DrawingSide='Left' />
<PinMap Pin='A15' Pod='Even' Channel='1' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Left' />
<PinMap Pin='A16' Pod='Even' Channel='3' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Left' />
<PinMap Pin='A18' Pod='Even' Channel='5' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Left' />
<PinMap Pin='A19' Pod='Even' Channel='7' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Left' />
<PinMap Pin='A21' Pod='Even' Channel='9' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Left' />
<PinMap Pin='A22' Pod='Even' Channel='11' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Left' />
<PinMap Pin='A24' Pod='Even' Channel='13' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Left' />
<PinMap Pin='A25' Pod='Even' Channel='15' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Left' />
<PinMap Pin='A27' Pod='Even' Channel='16' IsClockChannel='True' PinType='Signal' PolarityType='Differential' DifferentialType='NegativeDifferential' DifferentialPartnerPin='B27' DrawingSide='Left' />
<PinMap Pin='B1' Pod='Odd' Channel='0' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Right' />
<PinMap Pin='B2' Pod='Odd' Channel='2' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Right' />
<PinMap Pin='B4' Pod='Odd' Channel='4' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Right' />
<PinMap Pin='B5' Pod='Odd' Channel='6' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Right' />
<PinMap Pin='B7' Pod='Odd' Channel='8' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Right' />
<PinMap Pin='B8' Pod='Odd' Channel='10' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Right' />
<PinMap Pin='B10' Pod='Odd' Channel='12' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Right' />
<PinMap Pin='B11' Pod='Odd' Channel='14' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Right' />
<PinMap Pin='B13' Pod='Odd' Channel='16' IsClockChannel='True' PinType='Signal' PolarityType='Differential' DifferentialType='PositiveDifferential' DifferentialPartnerPin='A13' DrawingSide='Right' />
<PinMap Pin='B15' Pod='Even' Channel='0' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Right' />
<PinMap Pin='B16' Pod='Even' Channel='2' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Right' />
<PinMap Pin='B18' Pod='Even' Channel='4' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Right' />
<PinMap Pin='B19' Pod='Even' Channel='6' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Right' />
<PinMap Pin='B21' Pod='Even' Channel='8' PinType='Signal'
To define new probe types

```xml
<GenericProbes>
    <!-- Example of defining generic probe definitions -->
    <GenericProbe
        Type='E5398A 17-ch single-ended Soft touch connectorless probe'
        ConnectorType='90PinConnector'>
        ...
    </GenericProbe>
    <GenericProbe
        Type='E5396A 17-ch single-ended Soft touch connectorless probe'
        ConnectorType='40PinConnector'>
        ...
    </GenericProbe>
    <GenericProbe
        Type='E5394A 34-ch single-ended Soft touch connectorless probe'
        ConnectorType='40PinConnector'>
        ...
    </GenericProbe>
    <GenericProbe
        Type='E5390A 34-ch single-ended Soft touch connectorless probe'
        ConnectorType='90PinConnector'>
        ...
    </GenericProbe>
    <GenericProbe
        Type='E5390A 34-ch single-ended Soft touch connectorless probe'
        ConnectorType='90PinConnector'>
        <Pods>
            <Pod SecondaryName='Odd' />
            <Pod SecondaryName='Even' />
        </Pods>
        <PinMaps>
            <PinMap Pin='A1' Pod='Odd' Channel='1' PinType='Signal'
                PolarityType='SingleEnded' DrawingSide='Left' />
            <PinMap Pin='A2' Pod='Odd' Channel='3' PinType='Signal'
                PolarityType='SingleEnded' DrawingSide='Left' />
        </PinMaps>
    </GenericProbe>
</GenericProbes>
```
To define new probe types

<PinMap Pin='B15' Pod='Even' Channel='0' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Right' />
<PinMap Pin='B16' Pod='Even' Channel='2' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Right' />
<PinMap Pin='B18' Pod='Even' Channel='4' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Right' />
<PinMap Pin='B19' Pod='Even' Channel='6' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Right' />
<PinMap Pin='B21' Pod='Even' Channel='8' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Right' />
<PinMap Pin='B22' Pod='Even' Channel='10' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Right' />
<PinMap Pin='B24' Pod='Even' Channel='12' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Right' />
<PinMap Pin='B25' Pod='Even' Channel='14' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Right' />
<PinMap Pin='B27' Pod='Even' Channel='16' IsClockChannel='True' PinType='Signal' PolarityType='Differential' DifferentialType='PositiveDifferential' DifferentialPartnerPin='A27' DrawingSide='Right' />
</PinMaps>
</GenericProbe>
<GenericProbe Type='E5387A 17-ch differential Soft touch connectorless probe' ConnectorType='90PinConnector'>
...
</GenericProbe>
<GenericProbe Type='E5385A 34-ch single-ended Samtec probe' ConnectorType='40PinConnector'>
...
</GenericProbe>
<GenericProbe Type='E5380A 34-ch single-ended Mictor probe' ConnectorType='40PinConnector'>
...
</GenericProbe>
<GenericProbe Type='E5379A 17-ch differential Samtec probe' ConnectorType='90PinConnector'>
...
</GenericProbe>
<GenericProbe Type='E5378A 34-ch single-ended Samtec probe' ConnectorType='90PinConnector'>
...
</GenericProbe>
<GenericProbe Type='E5351A 34-ch MICTOR single-ended probe' ConnectorType='40PinConnector'>
...
</GenericProbe>
<GenericProbe Type='E5346A 34-ch MICTOR single-ended probe' ConnectorType='40PinConnector'>
...
</GenericProbe>
To define new probe types

```
<GenericProbe
    Type='E5339A 34-ch MICTOR single-ended probe'
    ConnectorType='40PinConnector'>
    ...
</GenericProbe>
</GenericProbes>

<PinMap> Element

The <PinMap> element describes a pin's mapping on a probe.

Attributes

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Channel</td>
<td>'number' (The logic analyzer channel number on the pod.)</td>
</tr>
<tr>
<td>DifferentialPartnerPin</td>
<td>'string' (The pin name of this pin's differential partner.)</td>
</tr>
<tr>
<td>DifferentialType</td>
<td>'NegativeDifferential' or 'PositiveDifferential'</td>
</tr>
<tr>
<td>DrawingSide</td>
<td>'Left' or 'Right' (Specifies which side in the pin mapping dialog.)</td>
</tr>
<tr>
<td>IsClockChannel</td>
<td>'False' or 'True'</td>
</tr>
<tr>
<td>Pin</td>
<td>'string' (name of the pin)</td>
</tr>
<tr>
<td>PinPrefix</td>
<td>'Pad' (for soft touch probes) or 'Pin'</td>
</tr>
<tr>
<td>PinType</td>
<td>'Signal', 'Ground', 'Power', or 'NoConnect'</td>
</tr>
<tr>
<td>Pod</td>
<td>'string', for example, 'Odd', 'Even', or 'Pod' (one of the secondary names appearing in the &lt;Pods&gt; (see page 17) element)</td>
</tr>
<tr>
<td>PolarityType</td>
<td>'Differential' or 'SingleEnded'</td>
</tr>
</tbody>
</table>

Parents

This element can have the following parents: <PinMaps> (see page 16).

Examples

```
<PinMap Pin='A27' Pod='Even' Channel='16' IsClockChannel='True'
    PinType='Signal' PolarityType='Differential'
    DifferentialType='NegativeDifferential'
    DifferentialPartnerPin='B27' DrawingSide='Left' />
```

```
<PinMap Pin='B27' Pod='Even' Channel='16' IsClockChannel='True'
    PinType='Signal' PolarityType='Differential'
    DifferentialType='PositiveDifferential'
    DifferentialPartnerPin='A27' DrawingSide='Right' />
```
Setting Up Probes Online Help

To define new probe types

**<PinMaps> Element**

The `<PinMaps>` element contains pin map elements.

**Children**

This element can have the following children: `<PinMap>` (see page 15). The convention for ordering `<PinMap>` element children is from channel 0 upward.

**Parents**

This element can have the following parents: `<GenericProbe>` (see page 10).

**Example**

```xml
<PinMaps>
  <PinMap Pin='A1' Pod='Odd' Channel='1' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Left' />
  <PinMap Pin='A2' Pod='Odd' Channel='3' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Left' />
  <PinMap Pin='A4' Pod='Odd' Channel='5' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Left' />
  <PinMap Pin='A5' Pod='Odd' Channel='7' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Left' />
  <PinMap Pin='A7' Pod='Odd' Channel='9' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Left' />
  <PinMap Pin='A8' Pod='Odd' Channel='11' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Left' />
  <PinMap Pin='A10' Pod='Odd' Channel='13' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Left' />
  <PinMap Pin='A11' Pod='Odd' Channel='15' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Left' />
  <PinMap Pin='A13' Pod='Odd' Channel='16' IsClockChannel='True' PinType='Signal' PolarityType='Differential' DifferentialType='NegativeDifferential' DifferentialPartnerPin='B13' DrawingSide='Left' />
  <PinMap Pin='A15' Pod='Even' Channel='1' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Left' />
  <PinMap Pin='A16' Pod='Even' Channel='3' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Left' />
  <PinMap Pin='A18' Pod='Even' Channel='5' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Left' />
  <PinMap Pin='A19' Pod='Even' Channel='7' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Left' />
  <PinMap Pin='A21' Pod='Even' Channel='9' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Left' />
  <PinMap Pin='A22' Pod='Even' Channel='11' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Left' />
  <PinMap Pin='A24' Pod='Even' Channel='13' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Left' />
  <PinMap Pin='A25' Pod='Even' Channel='15' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Left' />
  <PinMap Pin='A27' Pod='Even' Channel='16' IsClockChannel='True' PinType='Signal' PolarityType='Differential' DifferentialType='NegativeDifferential' DifferentialPartnerPin='B27' DrawingSide='Left' />
  <PinMap Pin='B1' Pod='Odd' Channel='0' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Right' />
  <PinMap Pin='B2' Pod='Odd' Channel='2' PinType='Signal' PolarityType='SingleEnded' DrawingSide='Right' />
</PinMaps>
```
To define new probe types

<PinMap Pin='B4' Pod='Odd' Channel='4' PinType='Signal'
PolarityType='SingleEnded' DrawingSide='Right' />  
<PinMap Pin='B5' Pod='Odd' Channel='6' PinType='Signal'
PolarityType='SingleEnded' DrawingSide='Right' />  
<PinMap Pin='B7' Pod='Odd' Channel='8' PinType='Signal'
PolarityType='SingleEnded' DrawingSide='Right' />  
<PinMap Pin='B8' Pod='Odd' Channel='10' PinType='Signal'
PolarityType='SingleEnded' DrawingSide='Right' />  
<PinMap Pin='B10' Pod='Odd' Channel='12' PinType='Signal'
PolarityType='SingleEnded' DrawingSide='Right' />  
<PinMap Pin='B11' Pod='Odd' Channel='14' PinType='Signal'
PolarityType='SingleEnded' DrawingSide='Right' />  
<PinMap Pin='B13' Pod='Odd' Channel='16' IsClockChannel='True'
PinType='Signal' PolarityType='Differential'
DifferentialType='PositiveDifferential'
DifferentialPartnerPin='A13' DrawingSide='Right' />  
<PinMap Pin='B15' Pod='Even' Channel='0' PinType='Signal'
PolarityType='SingleEnded' DrawingSide='Right' />  
<PinMap Pin='B16' Pod='Even' Channel='2' PinType='Signal'
PolarityType='SingleEnded' DrawingSide='Right' />  
<PinMap Pin='B18' Pod='Even' Channel='4' PinType='Signal'
PolarityType='SingleEnded' DrawingSide='Right' />  
<PinMap Pin='B19' Pod='Even' Channel='6' PinType='Signal'
PolarityType='SingleEnded' DrawingSide='Right' />  
<PinMap Pin='B21' Pod='Even' Channel='8' PinType='Signal'
PolarityType='SingleEnded' DrawingSide='Right' />  
<PinMap Pin='B22' Pod='Even' Channel='10' PinType='Signal'
PolarityType='SingleEnded' DrawingSide='Right' />  
<PinMap Pin='B24' Pod='Even' Channel='12' PinType='Signal'
PolarityType='SingleEnded' DrawingSide='Right' />  
<PinMap Pin='B25' Pod='Even' Channel='14' PinType='Signal'
PolarityType='SingleEnded' DrawingSide='Right' />  
<PinMap Pin='B27' Pod='Even' Channel='16' IsClockChannel='True'
PinType='Signal' PolarityType='Differential'
DifferentialType='PositiveDifferential'
DifferentialPartnerPin='A27' DrawingSide='Right' />  
</PinMaps>

<Pod> Element (under Pods)

The <Pod> element gives a secondary name to a pod used by a probe.

Attributes

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SecondaryName</td>
<td>'string', for example, 'Odd', 'Even', or 'Pod'</td>
</tr>
</tbody>
</table>

Parents

This element can have the following parents: <Pods> (see page 17).

Example

<Pod SecondaryName='Odd' />

<Pods> Element

The <Pods> element contains secondary name pod elements.
To define new probe types

**Children**  
This element can have the following children: `<Pod>` (see page 17).

**Parents**  
This element can have the following parents: `<GenericProbe>` (see page 10).

**Example**  
```
<Pods>
  <Pod SecondaryName='Odd' />
  <Pod SecondaryName='Even' />  
</Pods>
```
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