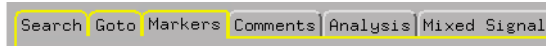

Help Volume

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System: Markers



In addition to *Marker* readouts, you also have the ability to *Search* for a defined data value or quickly *Goto* a defined state number or time value.

There are four markers available. Two markers, x and o , are local to each Display tool. You also have two global markers, $G1$ and $G2$, which are useful in *time-correlated* measurements. When a global marker is changed in one Display tool, the change is reflected in all correlated Display tools. In addition to the four markers, you have marker *Interval* and *Data at* readouts.

- “Searching for a Single Data Value or Pattern” on page 12
- “Searching for Complex Patterns and Ranges” on page 14
- “Placing Markers in the Data” on page 6
- “Finding a State, Pattern, or Marker” on page 9
- “Reading Marker Values” on page 10

See Also

“Activating Markers and Readouts” on page 17

“Setting Marker Type” on page 19

“Grouping Markers” on page 20

“Setting Displays to Follow Markers” on page 21

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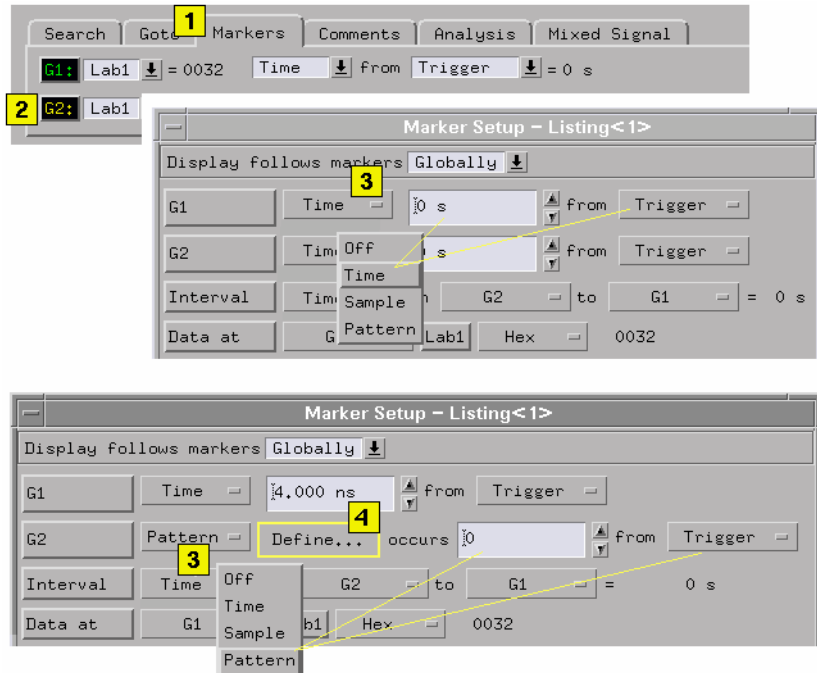
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Working with Markers

Placing Markers in the Data

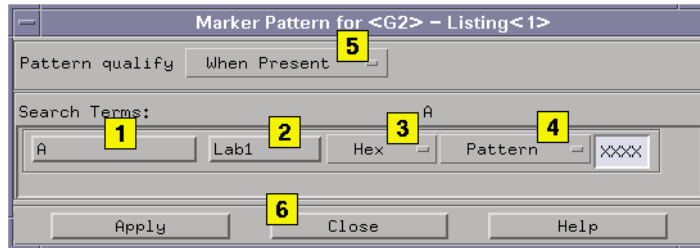
Use this procedure to place a marker at a point in time, a designated sample, or a defined pattern value. If you define a pattern value, all occurrences of that value are marked.

1. Select the *Markers* tab.
2. Select any activated marker field to access the *Marker Setup* dialog.
3. From the Markers Setup dialog, set the marker type. Your choices are Time, Sample, or Pattern.
 - If your choice is Time or Sample, enter the desired value and reference point.
 - If your choice is Pattern, enter the desired pattern occurrence and reference point.
4. Select *Define*, then from the dialog that appears, define a pattern (see page 7) to place the marker on.



Define a Pattern

1. Optional - If you are *ORing* search terms (see page 15), select the term field and add more search terms.
2. Optional - If you are *ANDing* other labels, select the label field and add more labels.
3. Select the numeric base field(s) and select the desired numeric base.
4. Select the *Pattern/Range* field and set the desired pattern or range option. Then, enter the value(s) into the value entry field(s).
5. Select the *Pattern qualify* field and select the pattern qualify option (see page 13).
6. Select *Close*.



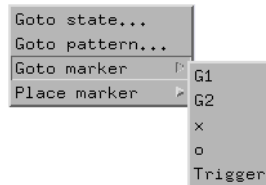
Search Qualifier Options

- *Present*; the search is considered valid when the value is present.
- *Entering*; the search is considered valid at the beginning of the specified pattern or range.
- *Exiting*; the search is considered valid at the end of the specified pattern or range.
- *Transition*; the search is considered valid when either the entering and exiting transitions of the specified pattern or range is seen.

Finding a State, Pattern, or Marker

Use this procedure to quickly find a state, a pattern value, or a predefined marker. The result of the search is displayed at center screen.

1. *Point* to any open area in the display.
2. From the shortcut menu that appears, select the desired search object.



Goto State

The *Goto state* selection lets you define a single state in any analyzer. It also maintains a list of all previous searches.

Goto Pattern

The *Goto pattern* selection lets you define a pattern and a specific occurrence of that pattern.

Goto Marker

The *Goto marker* selection searches for the location of any predefined marker.

Place Marker

The *Place marker* selection lets you place a Time or Sample marker. Any markers that have been previously defined as a pattern marker will not be available.

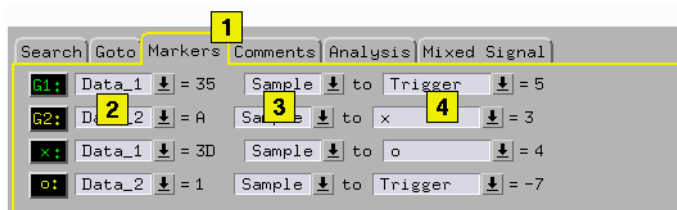
Reading Marker Values

Once local or global markers are placed in data, you can quickly read the following data:

- Data value at the marker under any assigned labels.
- Time or samples between the marker and a defined reference such as another marker, the trigger point, or the beginning or end of the data set.

Defined references can be any assigned marker, the trigger, or the beginning or end of the data set.

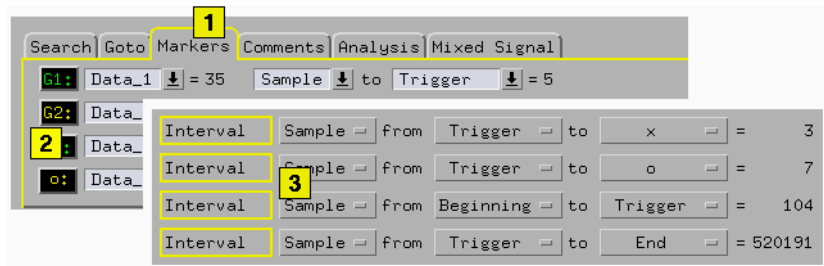
1. From the Display tool window, select the *Markers* tab.
2. Select the desired label.
3. Select either Time or Sample.
4. Select the desired reference.



Reading Multiple Intervals or Data Points

You can configure a custom readout of multiple *Interval* or *Data at* values.

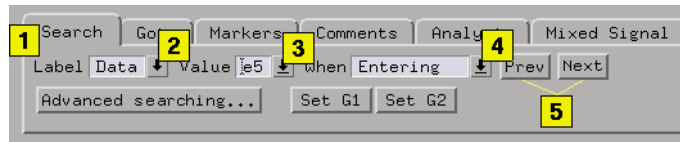
1. From the Display tool window, select the *Markers* tab.
2. Select any marker label.
3. Configure the desired readout types.



Searching for a Single Data Value or Pattern

Use this procedure to quickly find a single data value or pattern. When the data value is found, it is placed in the center of the display area.

1. From the Display tool window, select the *Search* tab.
2. Select the Label of the data you want to search.
3. Enter the Value you want to search for. See the note below.
4. Set the search qualifier (see page 8) option.
5. Select either *Next* or *Prev* to begin the search and to designate the direction of the search.



NOTE:

By using the "X" (don't care), you can define a search that is very specific to a value within the numeric base format. Example: XXX5 defines all patterns with a 5 in the LSB (least significant bit) position of a Hex number.

Qualifier Options

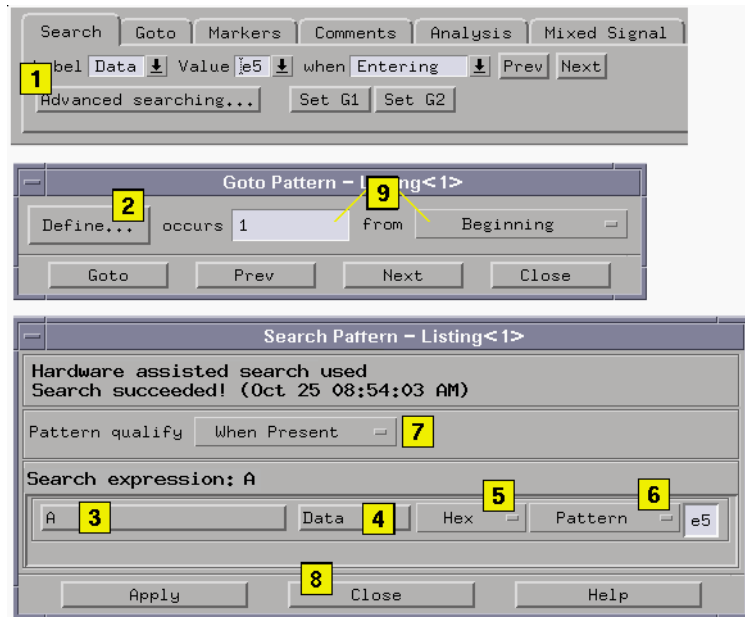
The pattern qualify options determine where the marker is placed in reference to the pattern or range.

- *When Entering*; the marker is placed at the beginning of the pattern or range.
- *When Exiting*; the marker is placed at the end of the pattern or range.
- *When Present*; the marker is placed at the beginning of the designated pattern or range occurrence when the greater-than and less-than criteria is matched. The pattern or range is considered present when the criteria is matched.
- *When Present >* (greater than); the marker is placed at the beginning of the designated pattern or range occurrence, and the designated > time value was satisfied. The Time mode in the instrument tool must be on before this option is available.
- *When Present <* (less than); the marker is placed at the beginning of the designated pattern or range occurrence, and the designated < time value was satisfied. The Time mode in the instrument tool must be on before this option is available.
- *When Present > <* (greater than - less than); the marker is placed at the beginning of the designated pattern or range occurrence when the greater-than and less-than criteria is matched.

Searching for Complex Patterns and Ranges

Use this procedure if your search requires *ANDing* or *ORing* search terms to find more complex data patterns or ranges. When the data pattern or range is found, it is placed in the center of the display area.

1. From the Display tool, select the *Search* tab, then *Advanced searching...*
2. Select the *Define ...* field.
3. Optional - If you are *ORing* search terms (see page 15), select the term field and add more search terms.
4. Optional - If you are *ANDing* other labels, select the label field and add more labels.
5. Select the numeric base field(s) and select the desired numeric base.
6. Select the *Pattern/Range* field and set the desired pattern or range option. Then, enter the value(s) into the value entry field(s).
7. Select the *Pattern qualify* field and select the pattern qualify option (see page 13).
8. Select *Close*.
9. From the Goto Pattern dialog, set the desired occurrence and reference for the search start point.
10. Select *Goto* to find the pattern. Select *Next* or *Prev* to search for more occurrences if desired.



NOTE:

Any changes in the Format dialog will invalidate your current advanced search parameters and will cause the Search Pattern dialog to be dismissed and all configured search pattern parameters to be reset to default.

See Also

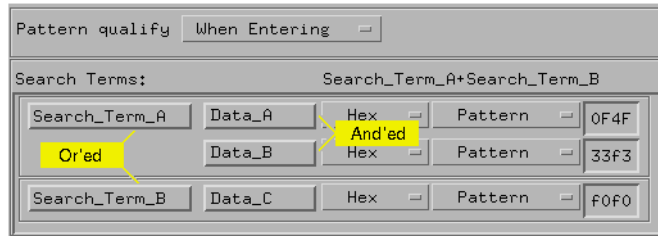
What are Search Terms (see page 15)

What is Hardware Assisted Search (16718A and higher) (see page 16)

What are Search Terms

In the Pattern marker operation, search terms are used to define a filter expression that determines how the data is searched and marked. Each single search term is made up of data patterns and ranges for one or more labels. All labels within a single search term are logically *AND'ed* together. All search terms are logically *OR'ed* together.

In the example below, the marker is placed in the data set where either the binary patterns of both labels *Data_A* and *Data_B* are found, or, the hex pattern of label *Data_C* is found.



What is Hardware Assisted Search (16718A and higher)

At the top of the Advanced Search dialog, you are notified when the logic analyzer is performing a hardware assisted search. When you see the "*Hardware assisted search*" message, the logic analyzer is translating the search request and passing it to the module hardware for search assistance.

In most search requests, hardware assisted search is automatically performed. There may be advanced searches where the request cannot be translated. In these cases, a "*Faster search hint*:" may be offered. If your intended search allows you to implement the hint, you may get the faster hardware assisted search to perform.

For the fastest possible hardware assisted searches, follow these general guidelines:

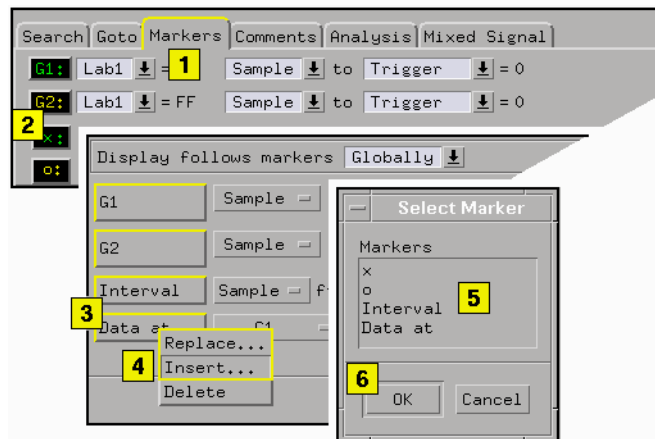
- Use only labels from one module in your search term.
- Use non-overlapping labels in your search term.
- Use only one pattern type in your search term.
- Use only "Pattern" or "Not Pattern" in labels.
- Use only "Entering", "Exiting", or "Present".

Activating Markers and Readouts

By default, the *G1* and *G2* markers are on. The *x* and *o* markers, and the *Interval* and *Data at* readouts are off. Use the following procedure to activate (see page 18) a marker, or an interval or data value readout.

Inserting or Replacing a Marker or Data Readout

1. From the Display tool window, select the *Markers* tab.
2. Select any activated marker field.
3. From the Marker Setup dialog that appears, select the marker field where you want the new marker inserted. When a marker is inserted, it becomes activated.
4. Select either *Insert* or *Replace*.
5. From the Select Marker dialog that appears, select the desired marker.
6. Select *OK*.
7. From the Markers Setup dialog, select *Close*.



Once a marker is activated, it can be quickly found by pointing anywhere in the display area, then select *Goto marker*.

Deleting a Marker or Data Readout

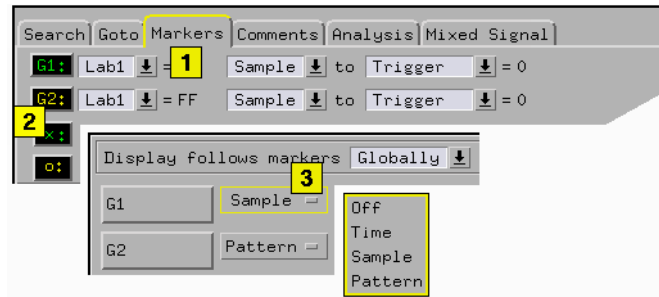
1. From the Display tool window, select the *Markers* tab.
2. Select any activated marker field.
3. From the Marker Setup dialog that appears, select the marker or data readout that you want to delete, then select *Delete*.

About Activated Markers or Data Readouts

As you *Insert* or *Replace* a marker or a data readout, it is turned on. When you *Delete* a marker or data readout, it is turned off. Any configuration you assigned to a marker when it was previously on, is retained when you turn it off.

Setting Marker Type

1. From the Display tool window, select the *Markers* tab.
2. Select any activated marker field.
3. From the Marker Setup dialog that appears, select the marker type field, then select the desired marker type.
4. Select *Close*.



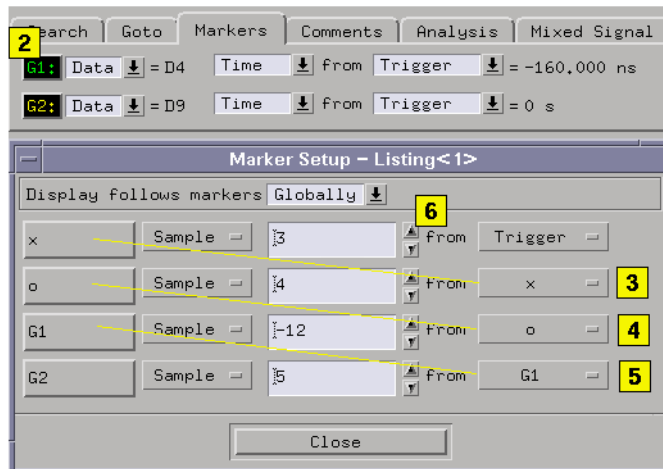
NOTE:

If the analyzer being used is configured as State, the Time option is not available.

Grouping Markers

Markers can be grouped so when one is moved, others that are referenced to it also move. Grouping markers is a good method of tracking a sequence of events for timing violations.

1. Place your first marker (see page 6) in the data set.
2. Select the *Markers* tab, then select any marker field.
3. From the Marker Setup dialog, place the second marker so it is referenced from the first marker.
4. Place the third marker so it is referenced from the second marker.
5. Place the fourth marker the same way if it is required.
6. To view the next occurrence of the group, increment the time value or the occurrence counter of the first marker.



Setting Displays to Follow Markers

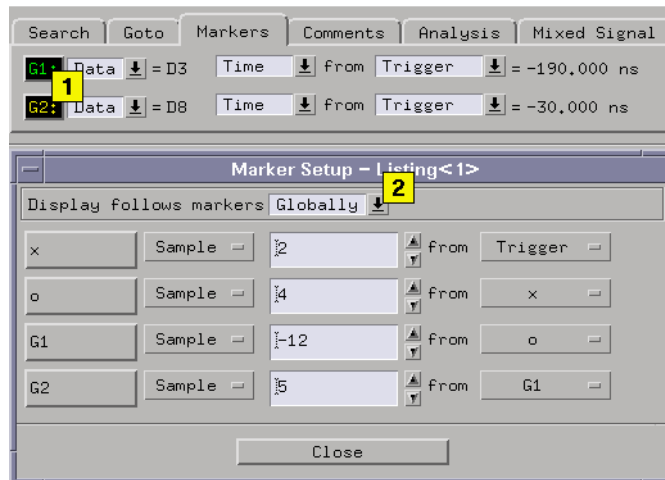
By placing global markers (G1 and G2) in data, you have the ability to view common data points in multiple display tools. Because global markers can be moved in any correlated display tool, you may at times find that always having the displayed data following the marker movement causes problems. The *Display follows markers* feature allows you to control movement of displayed data in each individual display after global markers are moved.

You have the option to let locally displayed data follow marker movement in all display tools, to only follow markers that are moved locally, or to lock the displayed data so it will not follow any marker movement.

1. From the Display tool, select the *Markers* tab, then select any marker field.
2. Select the *Display follows markers* field, then select the desired follow option.
 - Off - When G1 or G2 markers are moved either locally or in another display tool, the locally displayed data will not follow marker movement.
 - Locally - When G1 or G2 markers are moved in the local display tool, the locally displayed data follows the markers. When G1 or G2 markers are moved in other display tools, the locally displayed data will not follow markers movement in those other displays.
 - Globally - When G1 or G2 markers are moved within the data of any display tool, the displayed data in the local display follows marker movement.

Chapter 1: Working with Markers

Setting Displays to Follow Markers



Changing Marker Color

1. From the menu bar, select *Edit*, then *Set default attributes...* .
2. Select *Edit Colors*.
3. Select the marker color you want to change.
4. Use the Red/Green/Blue slide bars to make the desired changes.
5. Select *Save*, then select *Close*.

Reset Default Colors

To reset the eight colors back to default, select *Default*, then *Close*.

Glossary

absolute Denotes the time period or count of states between a captured state and the trigger state. An absolute count of -10 indicates the state was captured ten states before the trigger state was captured.

acquisition Denotes one complete cycle of data gathering by a measurement module. For example, if you are using an analyzer with 128K memory depth, one complete acquisition will capture and store 128K states in acquisition memory.

analysis probe A probe connected to a microprocessor or standard bus in the device under test. An analysis probe provides an interface between the signals of the microprocessor or standard bus and the inputs of the logic analyzer. Also called a *preprocessor*.

analyzer 1 In a logic analyzer with two *machines*, refers to the machine that is on by default. The default name is *Analyzer<N>*, where N is the slot letter.

analyzer 2 In a logic analyzer with two *machines*, refers to the machine that is off by default. The default name is *Analyzer<N2>*, where N is the slot letter.

arming An instrument tool must be

armed before it can search for its trigger condition. Typically, instruments are armed immediately when *Run* or *Group Run* is selected. You can set up one instrument to arm another using the *Intermodule Window*. In these setups, the second instrument cannot search for its trigger condition until it receives the arming signal from the first instrument. In some analyzer instruments, you can set up one analyzer *machine* to arm the other analyzer machine in the *Trigger Window*.

asterisk (*) See *edge terms*, *glitch*, and *labels*.

bits Bits represent the physical logic analyzer channels. A bit is a *channel* that has or can be assigned to a *label*. A bit is also a position in a label.

card This refers to a single instrument intended for use in the Agilent Technologies 16700A/B-series mainframes. One card fills one slot in the mainframe. A module may comprise a single card or multiple cards cabled together.

channel The entire signal path from the probe tip, through the cable and module, up to the label grouping.

click When using a mouse as the

Glossary

pointing device, to click an item, position the cursor over the item. Then quickly press and release the *left mouse button*.

clock channel A logic analyzer *channel* that can be used to carry the clock signal. When it is not needed for clock signals, it can be used as a *data channel*, except in the Agilent Technologies 16517A.

context record A context record is a small segment of analyzer memory that stores an event of interest along with the states that immediately preceded it and the states that immediately followed it.

context store If your analyzer can perform context store measurements, you will see a button labeled *Context Store* under the Trigger tab. Typical context store measurements are used to capture writes to a variable or calls to a subroutine, along with the activity preceding and following the events. A context store measurement divides analyzer memory into a series of context records. If you have a 64K analyzer memory and select a 16-state context, the analyzer memory is divided into 4K 16-state context records. If you have a 64K analyzer memory and select a 64-state context, the analyzer memory will be

divided into 1K 64-state records.

count The count function records periods of time or numbers of state transactions between states stored in memory. You can set up the analyzer count function to count occurrences of a selected event during the trace, such as counting how many times a variable is read between each of the writes to the variable. The analyzer can also be set up to count elapsed time, such as counting the time spent executing within a particular function during a run of your target program.

cross triggering Using intermodule capabilities to have measurement modules trigger each other. For example, you can have an external instrument arm a logic analyzer, which subsequently triggers an oscilloscope when it finds the trigger state.

data channel A *channel* that carries data. Data channels cannot be used to clock logic analyzers.

data field A data field in the pattern generator is the data value associated with a single label within a particular data vector.

data set A data set is made up of all labels and data stored in memory of any single analyzer machine or

Glossary

instrument tool. Multiple data sets can be displayed together when sourced into a single display tool. The Filter tool is used to pass on partial data sets to analysis or display tools.

debug mode See *monitor*.

delay The delay function sets the horizontal position of the waveform on the screen for the oscilloscope and timing analyzer. Delay time is measured from the trigger point in seconds or states.

demo mode An emulation control session which is not connected to a real target system. All windows can be viewed, but the data displayed is simulated. To start demo mode, select *Start User Session* from the Emulation Control Interface and enter the demo name in the *Processor Probe LAN Name* field. Select the *Help* button in the *Start User Session* window for details.

deskewing To cancel or nullify the effects of differences between two different internal delay paths for a signal. Deskewing is normally done by routing a single test signal to the inputs of two different modules, then adjusting the Intermodule Skew so that both modules recognize the signal at the same time.

device under test The system under test, which contains the circuitry you are probing. Also known as a *target system*.

don't care For *terms*, a "don't care" means that the state of the signal (high or low) is not relevant to the measurement. The analyzer ignores the state of this signal when determining whether a match occurs on an input label. "Don't care" signals are still sampled and their values can be displayed with the rest of the data. Don't cares are represented by the X character in numeric values and the dot (.) in timing edge specifications.

dot (.) See *edge terms*, *glitch*, *labels*, and *don't care*.

double-click When using a mouse as the pointing device, to double-click an item, position the cursor over the item, and then quickly press and release the *left mouse button* twice.

drag and drop Using a Mouse: Position the cursor over the item, and then press and hold the *left mouse button*. While holding the left mouse button down, move the mouse to drag the item to a new location. When the item is positioned where you want it, release the mouse button.

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Using the Touchscreen:

Position your finger over the item, then press and hold finger to the screen. While holding the finger down, slide the finger along the screen dragging the item to a new location. When the item is positioned where you want it, release your finger.

edge mode In an oscilloscope, this is the trigger mode that causes a trigger based on a single channel edge, either rising or falling.

edge terms Logic analyzer trigger resources that allow detection of transitions on a signal. An edge term can be set to detect a rising edge, falling edge, or either edge. Some logic analyzers can also detect no edge or a *glitch* on an input signal. Edges are specified by selecting arrows. The dot (.) ignores the bit. The asterisk (*) specifies a glitch on the bit.

emulation module A module within the logic analysis system mainframe that provides an emulation connection to the debug port of a microprocessor. An E5901A emulation module is used with a target interface module (TIM) or an analysis probe. An E5901B emulation module is used with an E5900A emulation probe.

emulation probe The stand-alone equivalent of an *emulation module*. Most of the tasks which can be performed using an emulation module can also be performed using an emulation probe connected to your logic analysis system via a LAN.

emulator An *emulation module* or an *emulation probe*.

Ethernet address See *link-level address*.

events Events are the things you are looking for in your target system. In the logic analyzer interface, they take a single line. Examples of events are *Label1 = XX* and *Timer 1 > 400 ns*.

filter expression The filter expression is the logical *OR* combination of all of the filter terms. States in your data that match the filter expression can be filtered out or passed through the Pattern Filter.

filter term A variable that you define in order to specify which states to filter out or pass through. Filter terms are logically *OR*'ed together to create the filter expression.

Format The selections under the logic analyzer *Format* tab tell the

Glossary

logic analyzer what data you want to collect, such as which channels represent buses (labels) and what logic threshold your signals use.

frame The Agilent Technologies or 16700A/B-series logic analysis system mainframe. See also *logic analysis system*.

gateway address An IP address entered in integer dot notation. The default gateway address is 0.0.0.0, which allows all connections on the local network or subnet. If connections are to be made across networks or subnets, this address must be set to the address of the gateway machine.

glitch A glitch occurs when two or more transitions cross the logic threshold between consecutive timing analyzer samples. You can specify glitch detection by choosing the asterisk (*) for *edge terms* under the timing analyzer Trigger tab.

grouped event A grouped event is a list of *events* that you have grouped, and optionally named. It can be reused in other trigger sequence levels. Only available in Agilent Technologies 16715A or higher logic analyzers.

held value A value that is held until

the next sample. A held value can exist in multiple data sets.

immediate mode In an oscilloscope, the trigger mode that does not require a specific trigger condition such as an edge or a pattern. Use immediate mode when the oscilloscope is armed by another instrument.

interconnect cable Short name for *module/probe interconnect cable*.

intermodule bus The intermodule bus (IMB) is a bus in the frame that allows the measurement modules to communicate with each other. Using the IMB, you can set up one instrument to *arm* another. Data acquired by instruments using the IMB is time-correlated.

intermodule Intermodule is a term used when multiple instrument tools are connected together for the purpose of one instrument arming another. In such a configuration, an arming tree is developed and the group run function is designated to start all instrument tools. Multiple instrument configurations are done in the Intermodule window.

internet address Also called Internet Protocol address or IP address. A 32-bit network address. It

Glossary

is usually represented as decimal numbers separated by periods; for example, 192.35.12.6. Ask your LAN administrator if you need an internet address.

labels Labels are used to group and identify logic analyzer channels. A label consists of a name and an associated bit or group of bits. Labels are created in the Format tab.

line numbers A line number (Line #s) is a special use of *symbols*. Line numbers represent lines in your source file, typically lines that have no unique symbols defined to represent them.

link-level address Also referred to as the Ethernet address, this is the unique address of the LAN interface. This value is set at the factory and cannot be changed. The link-level address of a particular piece of equipment is often printed on a label above the LAN connector. An example of a link-level address in hexadecimal: 0800090012AB.

local session A local session is when you run the logic analysis system using the local display connected to the product hardware.

logic analysis system The Agilent Technologies 16700A/B-series

mainframes, and all tools designed to work with it. Usually used to mean the specific system and tools you are working with right now.

machine Some logic analyzers allow you to set up two measurements at the same time. Each measurement is handled by a different machine. This is represented in the Workspace window by two icons, differentiated by a 1 and a 2 in the upper right-hand corner of the icon. Logic analyzer resources such as pods and trigger terms cannot be shared by the machines.

markers Markers are the green and yellow lines in the display that are labeled *x*, *o*, *G1*, and *G2*. Use them to measure time intervals or sample intervals. Markers are assigned to patterns in order to find patterns or track sequences of states in the data. The *x* and *o* markers are local to the immediate display, while *G1* and *G2* are global between time correlated displays.

master card In a module, the master card controls the data acquisition or output. The logic analysis system references the module by the slot in which the master card is plugged. For example, a 5-card Agilent Technologies 16555D would be referred to as *Slot C*:

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machine because the master card is in slot C of the mainframe. The other cards of the module are called *expansion cards*.

menu bar The menu bar is located at the top of all windows. Use it to select *File* operations, tool or system *Options*, and tool or system level *Help*.

message bar The message bar displays mouse button functions for the window area or field directly beneath the mouse cursor. Use the mouse and message bar together to prompt yourself to functions and shortcuts.

module/probe interconnect cable

The module/probe interconnect cable connects an E5901B emulation module to an E5900B emulation probe. It provides power and a serial connection. A LAN connection is also required to use the emulation probe.

module An instrument that uses a single timebase in its operation. Modules can have from one to five cards functioning as a single instrument. When a module has more than one card, system window will show the instrument icon in the slot of the *master card*.

monitor When using the Emulation Control Interface, running the monitor means the processor is in debug mode (that is, executing the debug exception) instead of executing the user program.

panning The action of moving the waveform along the timebase by varying the delay value in the Delay field. This action allows you to control the portion of acquisition memory that will be displayed on the screen.

pattern mode In an oscilloscope, the trigger mode that allows you to set the oscilloscope to trigger on a specified combination of input signal levels.

pattern terms Logic analyzer resources that represent single states to be found on labeled sets of bits; for example, an address on the address bus or a status on the status lines.

period (.) See *edge terms*, *glitch*, *labels*, and *don't care*.

pod pair A group of two pods containing 16 channels each, used to physically connect data and clock signals from the unit under test to the analyzer. Pods are assigned by pairs in the analyzer interface. The number of pod pairs available is determined

Glossary

by the channel width of the instrument.

pod See *pod pair*

point To point to an item, move the mouse cursor over the item, or position your finger over the item.

preprocessor See *analysis probe*.

primary branch The primary branch is indicated in the *Trigger sequence step* dialog box as either the *Then find* or *Trigger on* selection. The destination of the primary branch is always the next state in the sequence, except for the Agilent Technologies 16517A. The primary branch has an optional occurrence count field that can be used to count a number of occurrences of the branch condition. See also *secondary branch*.

probe A device to connect the various instruments of the logic analysis system to the target system. There are many types of probes and the one you should use depends on the instrument and your data requirements. As a verb, "to probe" means to attach a probe to the target system.

processor probe See *emulation probe*.

range terms Logic analyzer resources that represent ranges of values to be found on labeled sets of bits. For example, range terms could identify a range of addresses to be found on the address bus or a range of data values to be found on the data bus. In the trigger sequence, range terms are considered to be true when any value within the range occurs.

relative Denotes time period or count of states between the current state and the previous state.

remote display A remote display is a display other than the one connected to the product hardware. Remote displays must be identified to the network through an address location.

remote session A remote session is when you run the logic analyzer using a display that is located away from the product hardware.

right-click When using a mouse for a pointing device, to right-click an item, position the cursor over the item, and then quickly press and release the *right mouse button*.

sample A data sample is a portion of a *data set*, sometimes just one point. When an instrument samples the target system, it is taking a single

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measurement as part of its data acquisition cycle.

Sampling Use the selections under the logic analyzer Sampling tab to tell the logic analyzer how you want to make measurements, such as State vs. Timing.

secondary branch The secondary branch is indicated in the *Trigger sequence step* dialog box as the *Else on* selection. The destination of the secondary branch can be specified as any other active sequence state. See also *primary branch*.

session A session begins when you start a *local session* or *remote session* from the session manager, and ends when you select *Exit* from the main window. Exiting a session returns all tools to their initial configurations.

skew Skew is the difference in channel delays between measurement channels. Typically, skew between modules is caused by differences in designs of measurement channels, and differences in characteristics of the electronic components within those channels. You should adjust measurement modules to eliminate as much skew as possible so that it does not affect the accuracy of your

measurements.

state measurement In a state measurement, the logic analyzer is clocked by a signal from the system under test. Each time the clock signal becomes valid, the analyzer samples data from the system under test. Since the analyzer is clocked by the system, state measurements are *synchronous* with the test system.

store qualification Store qualification is only available in a *state measurement*, not *timing measurements*. Store qualification allows you to specify the type of information (all samples, no samples, or selected states) to be stored in memory. Use store qualification to prevent memory from being filled with unwanted activity such as no-ops or wait-loops. To set up store qualification, use the *While storing* field in a logic analyzer trigger sequence dialog.

subnet mask A subnet mask blocks out part of an IP address so that the networking software can determine whether the destination host is on a local or remote network. It is usually represented as decimal numbers separated by periods; for example, 255.255.255.0. Ask your LAN administrator if you need a the subnet mask for your network.

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symbols Symbols represent patterns and ranges of values found on labeled sets of bits. Two kinds of symbols are available:

- Object file symbols - Symbols from your source code, and symbols generated by your compiler. Object file symbols may represent global variables, functions, labels, and source line numbers.
- User-defined symbols - Symbols you create.

Symbols can be used as *pattern* and *range* terms for:

- Searches in the listing display.
- Triggering in logic analyzers and in the source correlation trigger setup.
- Qualifying data in the filter tool and system performance analysis tool set.

system administrator The system administrator is a person who manages your system, taking care of such tasks as adding peripheral devices, adding new users, and doing system backup. In general, the system administrator is the person you go to with questions about implementing your software.

target system The system under test, which contains the microprocessor you are probing.

terms Terms are variables that can be used in trigger sequences. A term can be a single value on a label or set of labels, any value within a range of values on a label or set of labels, or a glitch or edge transition on bits within a label or set of labels.

TIM A TIM (Target Interface Module) makes connections between the cable from the emulation module or emulation probe and the cable to the debug port on the system under test.

time-correlated Time correlated measurements are measurements involving more than one instrument in which all instruments have a common time or trigger reference.

timer terms Logic analyzer resources that are used to measure the time the trigger sequence remains within one sequence step, or a set of sequence steps. Timers can be used to detect when a condition lasts too long or not long enough. They can be used to measure pulse duration, or duration of a wait loop. A single timer term can be used to delay trigger until a period of time after detection of a significant event.

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timing measurement In a timing measurement, the logic analyzer samples data at regular intervals according to a clock signal internal to the timing analyzer. Since the analyzer is clocked by a signal that is not related to the system under test, timing measurements capture traces of electrical activity over time. These measurements are *asynchronous* with the test system.

tool icon Tool icons that appear in the workspace are representations of the hardware and software tools selected from the toolbox. If they are placed directly over a current measurement, the tools automatically connect to that measurement. If they are placed on an open area of the main window, you must connect them to a measurement using the mouse.

toolbox The Toolbox is located on the left side of the main window. It is used to display the available hardware and software tools. As you add new tools to your system, their icons will appear in the Toolbox.

tools A tool is a stand-alone piece of functionality. A tool can be an instrument that acquires data, a display for viewing data, or a post-processing analysis helper. Tools are represented as icons in the main window of the interface.

trace See *acquisition*.

trigger sequence A trigger sequence is a sequence of events that you specify. The logic analyzer compares this sequence with the samples it is collecting to determine when to *trigger*.

trigger specification A trigger specification is a set of conditions that must be true before the instrument triggers.

trigger Trigger is an event that occurs immediately after the instrument recognizes a match between the incoming data and the trigger specification. Once trigger occurs, the instrument completes its *acquisition*, including any store qualification that may be specified.

workspace The workspace is the large area under the message bar and to the right of the toolbox. The workspace is where you place the different instrument, display, and analysis tools. Once in the workspace, the tool icons graphically represent a complete picture of the measurements.

zooming In the oscilloscope or timing analyzer, to expand and contract the waveform along the time base by varying the value in the s/Div

field. This action allows you to select specific portions of a particular waveform in acquisition memory that will be displayed on the screen. You can view any portion of the waveform record in acquisition memory.

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