Help Volume

Display: Chart Display Tool

Using the Chart Tool

The Chart tool displays state data in an x-y plot format. Use the x-y plots to quickly identify valid data in the form of visual patterns.

- "Analog to Digital Converter Testing" on page 12

- "Zooming in on Chart Data - Scaling" on page 9

- "Finding a Pattern" on page 11

- "Loading and Saving Chart Configurations" on page 16

- "Printing the Chart Window" on page 15

See Also   Working with Markers (see the *Markers* help volume)

"Seeing Measurement Results - Popup on Run" on page 23

"Choosing which Data to Plot" on page 13

"Selecting the Numeric Base" on page 17

"Changing Plot Type and Color" on page 8

"Turning Tabs On or Off in the Display Window" on page 24

Using the Analysis Tab (see the *HP 16600A/16700A Logic Analysis System* help volume)

Using the Mixed Signal Tab (see the *HP 16600A/16700A Logic Analysis System* help volume)

Main System Help (see the *HP 16600A/16700A Logic Analysis System* help volume)

Glossary of Terms (see page 27)

Contents

Using the Chart Tool

1 Using the Chart Tool

Contents

1
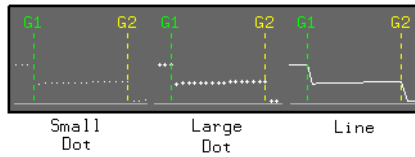
Using the Chart Tool

Changing Plot Type and Color

To Change Plot Type
1. From the tool's menu bar, click *Options*, then select *Plot Type*.

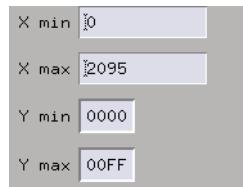2. Select the desired plot type.

To Change Label Color
1. From the tool's menu bar, click *Options*, then select *Color*.

2. Select the desired label color, then click *Apply*.

Zooming in on Chart Data - Scaling

There are two ways to scale the chart and zoom in on a desired view. One is to type in minimum and maximum values for the chart axis, the other is to zoom.

Typing in Axis Values
1. Click on the axis value field.

2. Backspace or delete the current numbers.

3. Type the new axis value, then click *Apply*.

X min	0
X max	2095
Y min	0000
Y max	00FF

Quick Zoom

Tip

Point to the desired top-left corner of the new viewing area. Press and hold the *left mouse button*, then drag the dashed box to the desired lower-right corner.

See Also

Returning Chart View to Full Scale

After zooming in on chart data or scaling the view, you may want to return to a full-scale view. To return to a full-scale view:

• Right-click anywhere in the viewing area, and select the *Full Scale* option from the list.

Returning to Previous Zoom View - Undo

After several zoom operations on chart data, you may want to return to a previous zoom view. To return to previous zoom views:

- Right-click anywhere in the viewing area, and select *Undo scaling* from the list.

Finding a Pattern

To find a data pattern or value in the chart data, place a marker (see the *Markers* help volume) in the data.

If you have placed multiple markers in the data, you can view the interval (see the *Markers* help volume) between the markers.

See Also   "Reading the X-Y Pointer Position" on page 14

Analog to Digital Converter Testing

A basic tool configuration for this test is the Chart tool connected to a state analyzer, with data bits 0 through 7 of the A to D convertor connected to input channels 0 through 7 of the analyzer respectively. Also, the A to D clock-out is connected to the clock input of the analyzer pod.

1. In the Chart tool, select the label (see page 13) assigned to the incoming signals from the A to D convertor.

2. Change the plot type (see page 8) to *Line*.

3. Repetitive run (see page 20) the analyzer.

4. Scale the chart axis (see page 9) so the maximum peak-to-peak amplitude conversion of the A to D is plotted full scale.

Ideal results are that as the amplitude of the analog input signal to the A to D is increased, the output (viewed in Chart) will i not be clipped before the full scale specification of the A to D convertor is reached.
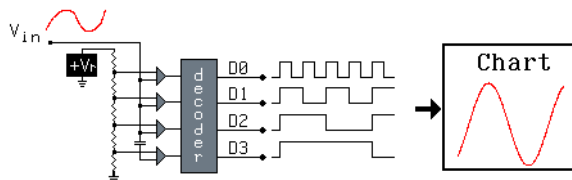
Choosing which Data to Plot

Data is plotted by label, and the available labels are the ones that you assigned in the *Format* window of the instrument tool being used. To plot data assigned to a label, simply select the desired label from the label list.
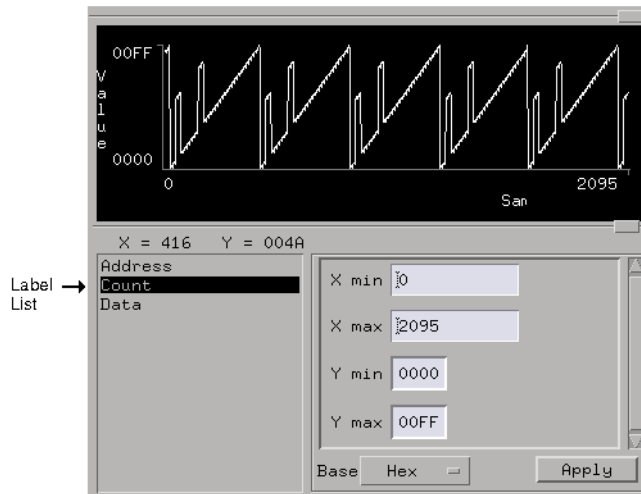
Reading the X-Y Pointer Position

You can quickly read the value of any point on the chart by pointing the mouse cursor to the desired place on the chart, then by reading the X-Y pointer position.
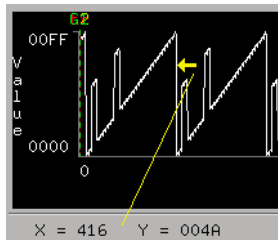
Printing the Chart Window

The print windows operation enables you to print just the Chart tool window. Use this operation if you want a hardcopy or electronic record of configurations and data currently displayed in the viewing area of the Chart window.

NOTE: Only the currently displayed viewing area of the Chart window is printed. If any data or configuration fields appear offscreen, scroll the desired data or configuration fields into the window's viewing area before printing.

1. Optional - configure the Print Option (see the *HP 16600A/16700A Logic Analysis System* help volume) if desired.
   Print Options include print destination, file format type, filename autoincrement, and color/b&w; pixel mapping.

2. In the Chart tool menu bar, click *File*, then select *Print This Window*. The print output will be as configured in the Print Options in step 1.

See Also   Print Option (see the *HP 16600A/16700A Logic Analysis System* help volume)

Printer Setup (see the *HP 16600A/16700A Logic Analysis System* help volume)

"Including Comments on Screen Prints" on page 25

Loading and Saving Chart Configurations

Chart Tool settings can be saved to a configuration file along with the tools connected to it, and loaded from a previously saved configuration file.

- Loading Configuration Files (see the *HP 16600A/16700A Logic Analysis System* help volume)

- Saving Configuration Files (see the *HP 16600A/16700A Logic Analysis System* help volume)

NOTE: The *Load Configuration* window can be accessed via File->Load Configuration.
The *Save Configuration* window can be accessed via File->Save Configuration.

Selecting the Numeric Base
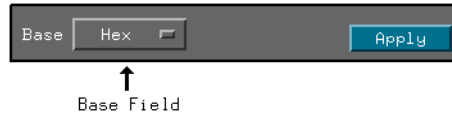
Base Field

1. Click on the base field.

2. Select the desired base type, then click *Apply*.

Run/Group Run Function

- Setting a tool for independent or Group Run (see page 19)

- Setting Single or Repetitive Run (see page 20)

- "Checking Run Status" on page 20

Understanding Run/Run All/Group Run

The Run/Run All/Group Run buttons initiate data capture in the instrument tools you have configured. When an instrument tool is connected to analysis or display tools, any of the tools can initiate a run. When two or more instrument tools are configured, you can run them independently or as a group. Two or more instruments running as a group is called an Intermodule measurement.

Use the Intermodule Window (see the *HP 16600A/16700A Logic Analysis System* help volume) to coordinate the run function of multiple instruments as a "Group Run". A common "Group Run" configuration is to run the instrument tools at the same time. A more advanced measurement is to configure one instrument to arm another instrument, each with their own trigger conditions.

- Run appears in the setup dialog and icon menu of an instrument if it is not part of an Intermodule measurement.

- Group Run appears in the setup dialog and icon menu of each tool if two or more instruments are configured for an Intermodule measurement.

- Run All always appears in the System, Workspace and Run Status windows, and initiates a run in all configured instruments, whether they are run independently or are part of a Group Run.

Intermodule measurements are configured between individual instruments. Arming between two machines that belong to one analyzer is configured in the *Arming Info...* dialog found in the *Trigger* window of the analyzer.

Understanding Stop/Stop_All/Cancel

- Stop will terminate an individual instrument measurement that is running.

(perhaps waiting for a trigger condition)

- Stop All, when selected from the Workspace, will terminate running measurements from all instruments currently on the Workspace.

- Cancel will terminate the processing of trace data from an instrument to an analysis or display tool connected to its output.

See Also "Demand Driven Data" on page 21

Setting a tool for independent or Group Run

Use the Intermodule Window to change between Group Run and independent Run.

- Click the Intermodule icon in the System Window, OR

- Use Navigate->System->Intermodule

In the Intermodule window, move instruments between independent Run and Group Run by clicking the icon and selecting the desired arming source. All instruments in "Group Run" will run simultaneously.
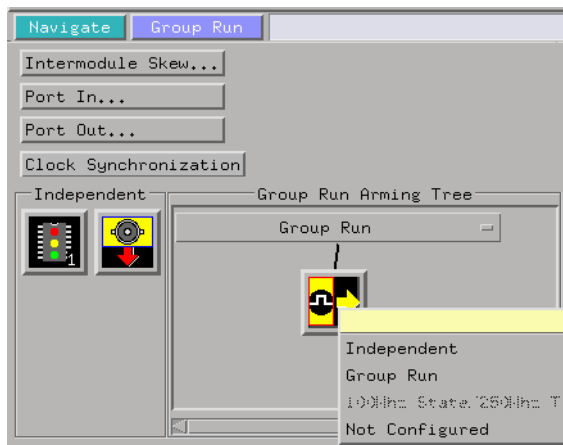
Setting Single or Repetitive Run

A single measurement will stop after memory is full or a store qualification is met. A repetitive measurement executes successive Single measurements until Stop is selected.

When a single or repetitive measurement is stopped, only data that has been captured to that point is available for viewing.

Select single or repetitive by right-clicking on the Run button in the tool's setup window.
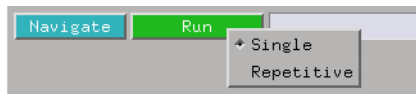
If you have problems displaying trace data when running Repetitive measurements, see "Demand Driven Data" on page 21.

Checking Run Status

The *Run Status* dialog provides status information about the currently configured instruments, and the status of the run with respect to the trigger specification.

To access the *Run Status* dialog:

• The Run Status icon in the System Window, OR

• Navigate->System->Run Status

Demand Driven Data

When an analyzer measurement occurs, acquisition memory is filled with data that is then transferred to the display memory of the analysis or display tools you are using, as needed by those tools. In normal use, this *demand driven data* approach saves time by not transferring unnecessary data.

Since acquisition memory is cleared at the beginning of a measurement, stopping a run may create a discrepancy between acquisition memory and the memory buffer of connected tools. Without a complete trace of acquisition memory, the display memory will appear to have 'holes' in it which appear as filtered data.

This situation will occur in these cases:

• If you stop a repetitive measurement after analyzer data has been cleared and before the measurement is complete.

• If a trigger is not found by the analyzer and the run must be stopped to regain control.

To make sure all of the data in a repetitive run is available for viewing:

• In the workspace, attach a Filter tool to the output of the analyzer.

• In the Filter, select "Pass Matching Data"

• In the filter terms, assure the default pattern of all "Don't Cares" (Xs).

This configuration will always transfer all data from acquisition memory. While this configuration will increase the time of each run, it will guarantee that repetitive run data is available regardless of when it is stopped.

Seeing Measurement Results - Popup on Run

By default, measurement results do not pop up automatically when an analyzer completes its run. If you wish to have a display of measurement results pop up when a run is completed, do the following:

- Click *Options* in the menu bar and select *Popup on Run* and *On*.

Turning Tabs On or Off in the Display Window

The tabs in the display window give you quick access and visual reference to all the capabilities in the display window. You may wish to turn the tabs off to simplify display content.

• Click *Options* in the menu bar and select *Tabs* and *On* or *Off*.

Including Comments on Screen Prints

When you have tabs turned on, you can also enter your own comments on screen. This allows you to obtain a printed copy of your screen that includes your comments.

- Turn tabs on, (see page 24) and under the *Tabs On* option, select *Stack comments*.

- Enter the text you wish to see in the print of your display.
  Each print can include multiple comment lines. If you need more than the default two comment lines, resize the comment text window using the sash.

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 the target microprocessor. It provides an interface between the signals of the target microprocessor 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 HP 16600A-series or HP 16700A mainframe. 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 To click an item, position the cursor over the item. Then quickly press and release the *left mouse*

Glossary

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 HP 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 instrument tool. Multiple data sets can be displayed together when sourced into a single display tool. The

Glossary

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. Click *Help* 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.

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 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 To drag and drop an item, 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.

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,

Glossary

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

frame The HP 16600A-series or HP 16700A 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

Glossary

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 HP 16715A, 16716A, and 16717A 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 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.

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.

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

Glossary

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 HP 16600A-series or HP 16700A mainframe, 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 HP 16555D would be referred to as *Slot C: 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.

Glossary

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*.

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.

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 See *pod pair*

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 avalaible is determined by the channel width of the instrument.

point To point to an item, move the mouse cursor 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 HP 16517A. The primary branch has an optional occurrence count field

Glossary

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 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 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

Glossary

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.

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.

Glossary

- 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.

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.

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

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.

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

Glossary

window of the interface.

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.

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.

trace See *acquisition*.

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.

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.

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.

Glossary

Index

Index