Logic Analysis …

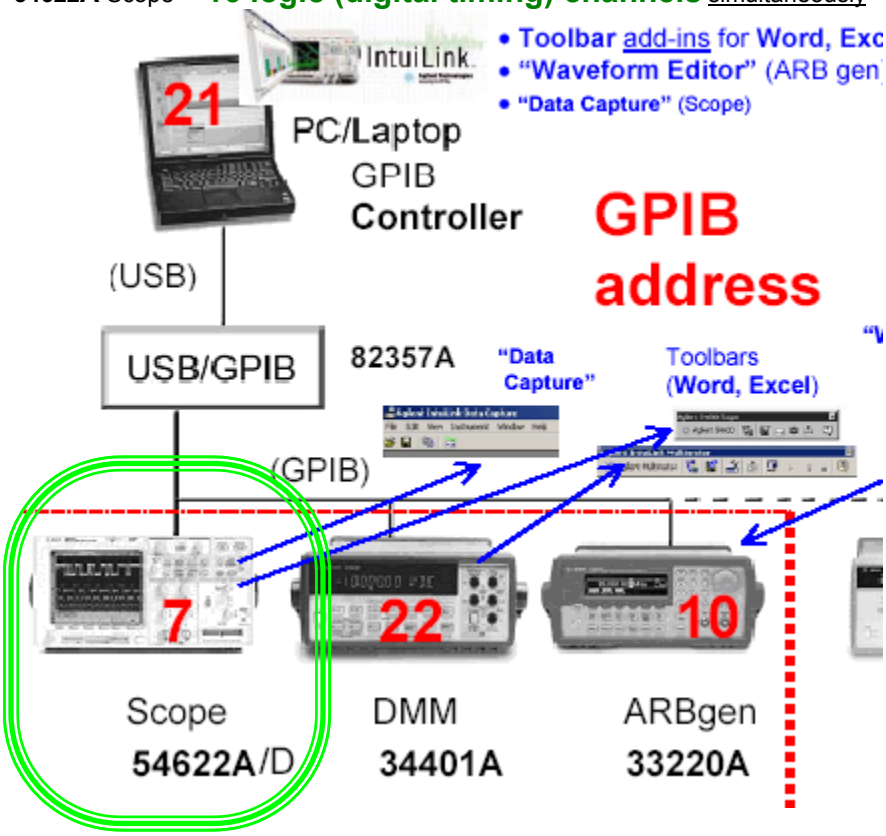
L107 Lab

- **E9340A LogicWave PC Logic Analyzer**

34 channels; **100** MHz **state** (64K),
250 MHz **timing** (128K) analysis
Connects via **parallel** **port**
Single-screen user interface

- **54622D Mixed Signal Oscilloscope (MSO):**

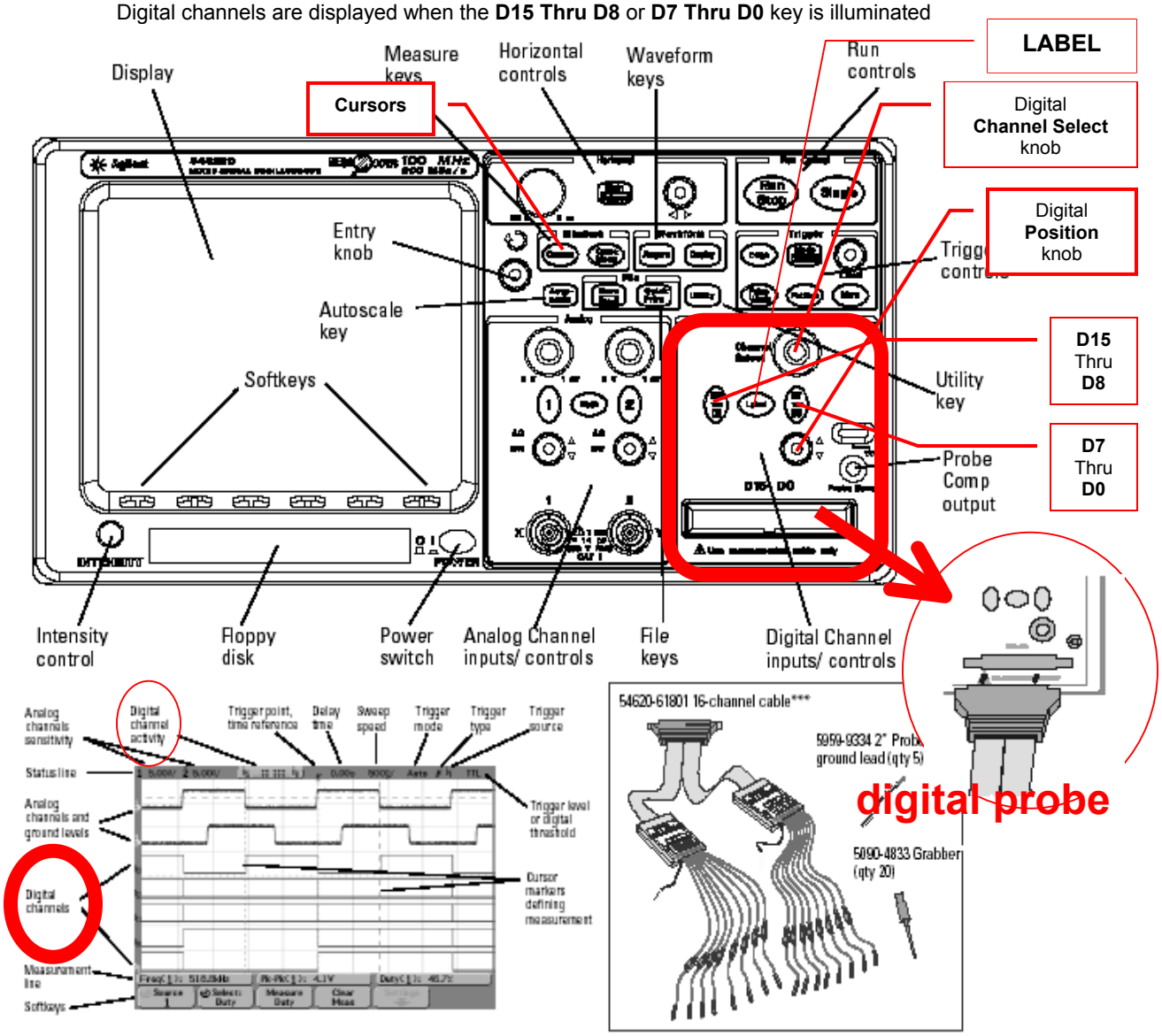
54622A Scope **+ 16 logic (digital timing) channels** simultaneously



- **54622D Mixed Signal Oscilloscope (MSO):**

54622A Scope + **16 logic (digital timing) channels** simultaneously

Digital channels are displayed when the **D15 Thru D8** or **D7 Thru D0** key is illuminated



Acquisition: Digital Channels (54622D only)

Max Sample rate: **200** MSa/s; Max Memory depth: **4** MB; Vertical resolution: **1 bit**
Glitch detection (min pulse width): **5** ns

Vertical System: Digital Channels (54622D only)

Number of Channels: **16 Digital** – **labeled D15 – D0,**
Pod 1: D7 - D0, **Pod 2**: D15 - D8
Threshold selections: TTL, CMOS, ECL, user-definable (selectable by **pod**)

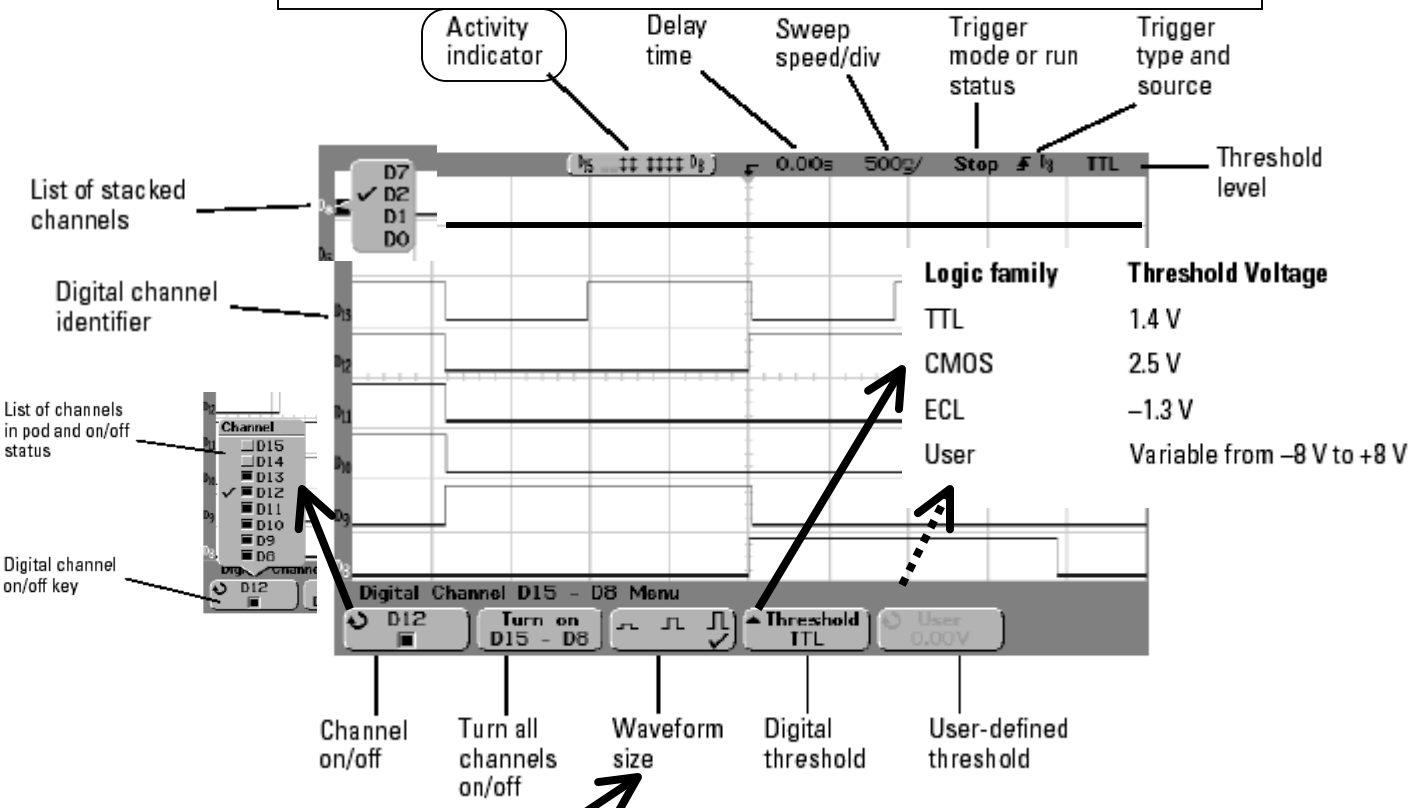
Maximum Input Voltage ±40 V peak !!!

Input Dynamic range: ±10 V about threshold
Input: ~ 8 pF || **100 kΩ** at probe tip (DC and low-frequency)

Trigger System: Sources (54622**D**) - Ch 1, Ch 2, line, ext, **D15 - D0**
Digital (D15 - D0) Channel Triggering (54622D only)
Threshold range: TTL, CMOS, ECL, and user defined

Interpreting the digital waveform display

Activity indicator
A digital channel can be always high (‾), always low (_), actively toggling logic states (↕), or OFF



Press the size (⎍ ⎍ ⎍) softkey to select how the digital channels are displayed.

The sizing control allows you to spread out or compress the digital traces vertically on the display for more convenient viewing. Setting the size in either digital channel menu determines the size for all displayed digital channels.

Select ⎍ to display 8 channels or ⎍ to display 16 channels full screen.

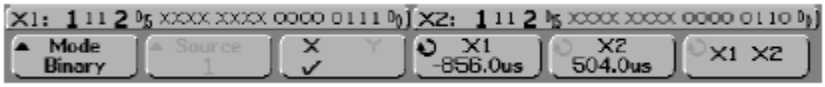
Select ⎍ to display 16 channels in half of the display.

Channel Select The selected channel number is highlighted on the left side of the display

Position (reposition the selected channel on the display) If two or more channels are displayed at the same vertical position (stacked), the channel number will be shown as **D*** on the left side of the display. When you use the Channel Select knob to select this channel, a pop up will appear showing the list of overlaid channels. Continue turning the Channel Select knob until the desired channel within the pop up is selected. You can also use this feature to bus several signals together on the display.

Label MSO allows you to define and assign labels to each input channel, or you can turn labels off to increase the waveform display area.

NOTE: using the **Cursors** (Press the **Cursors** key, then press the **Mode** softkey)



In hexadecimal and binary mode, a level can display as 1 (higher than trigger level), 0 (lower than trigger level), indeterminate state (↕), or X (don't care).

In binary mode, X is displayed if the channel is turned off. In hex mode, the channel is interpreted as a 0 if turned off.

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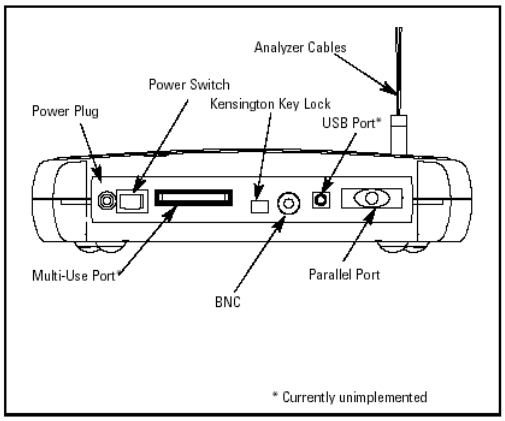

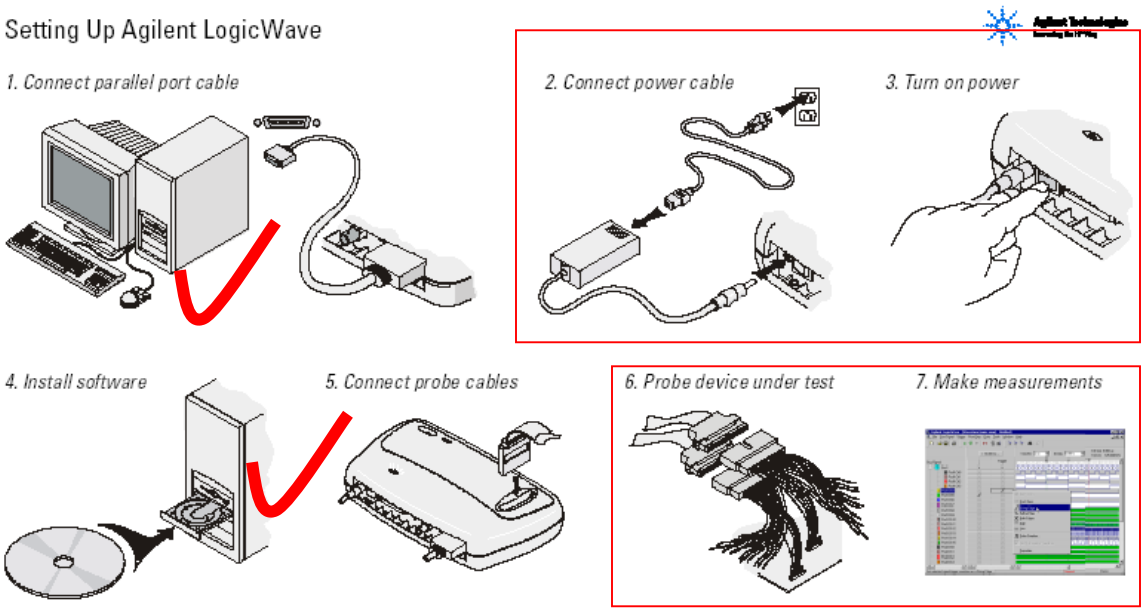

Timing measurement:

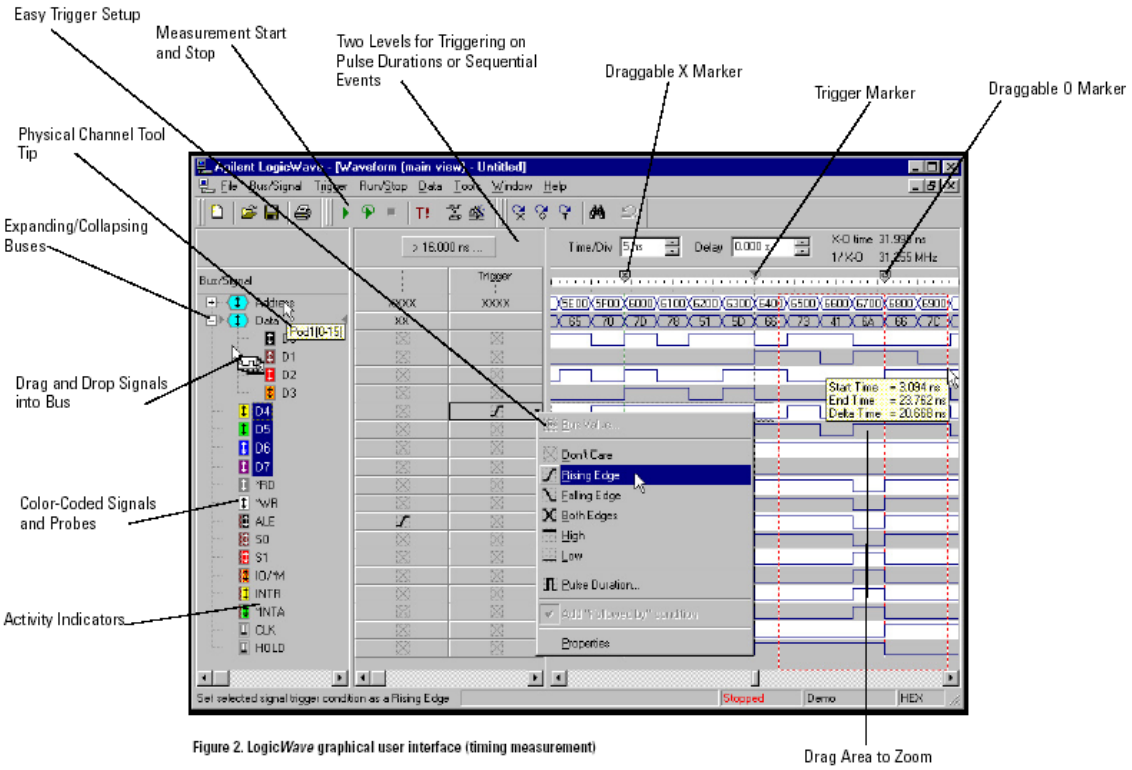

Figure 2. Logic*Wave* graphical user interface (timing measurement)

State measurement:

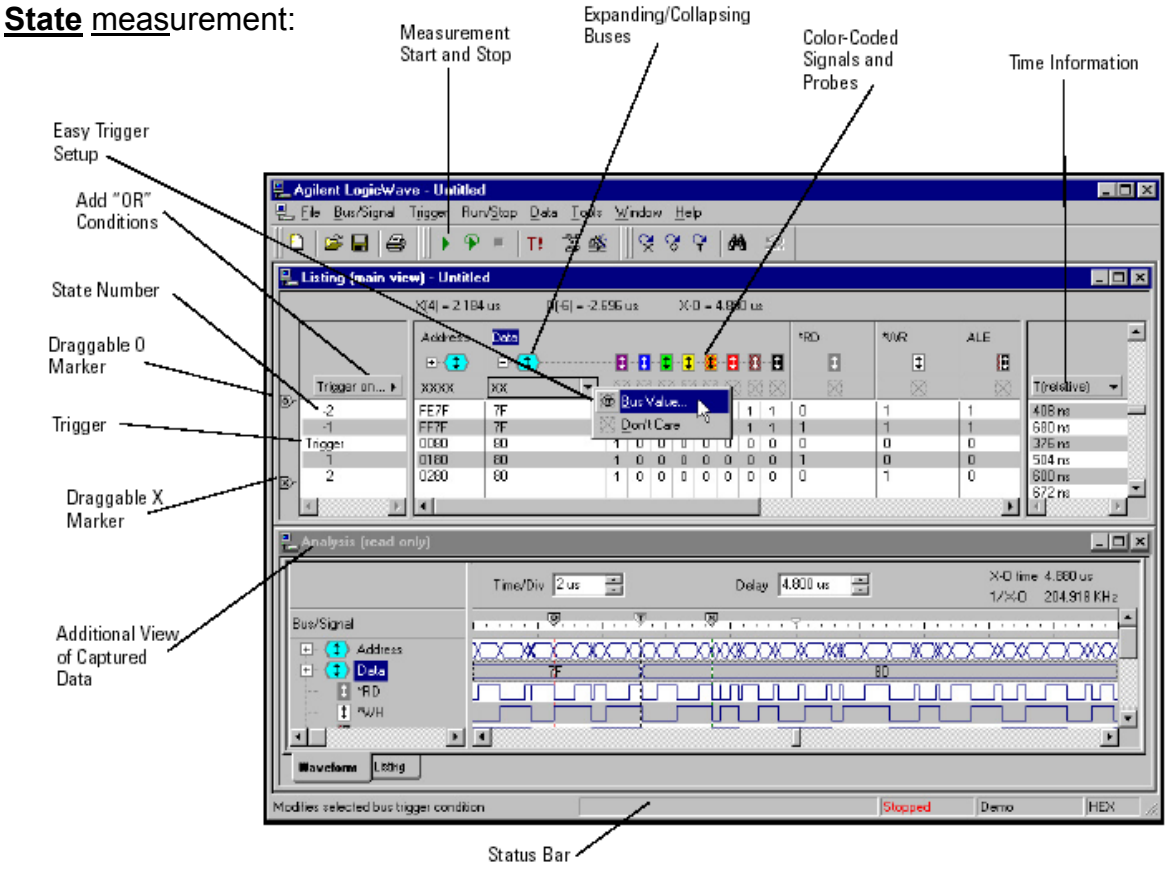

Figure 3. Logic*Wave* graphical user interface (state measurement)