Logic Analysis …

• **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
  
  - Toolbar add-ins for Word, Excel
  - "Waveform Editor" (ARB gen)
  - "Data Capture" (Scope)
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 (54622D) - 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

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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**Setting Up Agilent LogicWave**

1. Connect parallel port cable

2. Connect power cable

3. Turn on power

4. Install software

5. Connect probe cables

6. Probe device under test

7. Make measurements
Timing measurement:

- Easy Trigger Setup
- Measurement Start and Stop
- Text Levels for Triggering on Pulse Durations or Sequential Events
- Droppable X Marker
- Droppable 0 Marker
- Physical Channel Tool Tip
- Expanding/Collapsing Boxes
- Drag and Drop Signals into Bus
- Color-Coded Signals and Probes
- Activity Indicators

![Figure 2. LogicWave graphical user interface (timing measurement)](image)

State measurement:

- Easy Trigger Setup
- Add "OFF" Conditions
- State Number
- Droppable 0 Marker
- Trigger
- Droppable X Marker
- Additional View of Captured Data
- Measurement Start and Stop
- Expanding/Collapsing Boxes
- Color-Coded Signals and Probes
- Time Information

![Figure 3. LogicWave graphical user interface (state measurement)](image)