LOGIC ANALYZERS
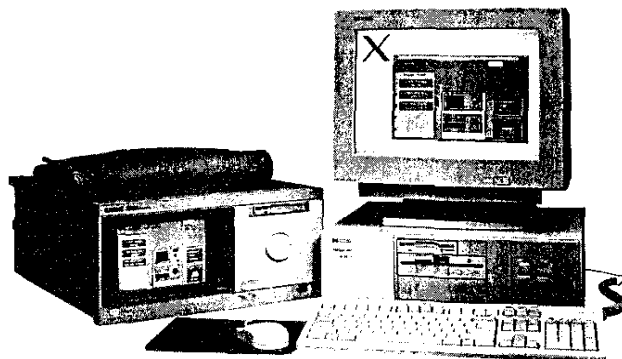
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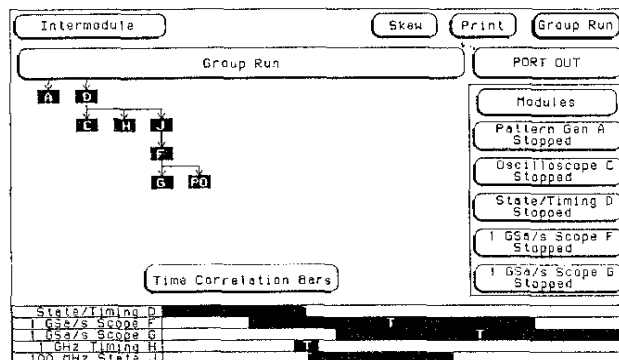## Modular Logic Analysis System Mainframes
HP 16500B, 16501A, 16500H, 16500U
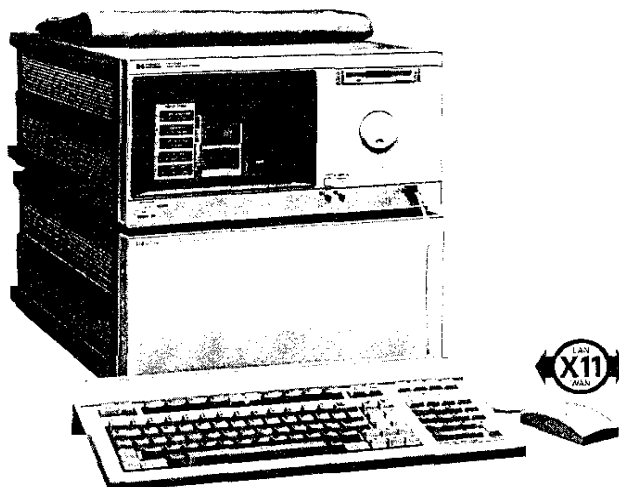
HP 16500B modular logic analyzer with color touchscreen, keyboard or mouse driven user interface helps you quickly solve today's problems and provides room to grow in the future.

The HP 16500B's menus can be remotely viewed and controlled from a PC or workstation using the X-Window protocol.

Powerful cross-domain triggering helps you pinpoint problems that display symptoms in one domain but are caused by activity from another domain.

A Complete Digital Design Team Tool

The HP 16500B modular logic analysis system mainframe can be configured for a wide range of measurement tasks, including microprocessor debug with source-code referencing, timing verification and debug, software performance analysis, and characterization. The modular nature of the HP 16500 series enables you to add new measurement modules as your needs change.

About the HP 16500B Mainframe

The HP 16500B mainframe and companion HP 16501A expander frame house up to 10 integrated, time-correlated measurement modules—state/timing analysis, oscilloscope analysis, pattern generation, ultra-deep data capture and ultra-high-speed timing. A consistent menu-driven user interface spans all modules.

Fast, Direct User Interface

Save time with the HP 16500B color touchscreen. Simply point to the field you want to change; the touchscreen eliminates the need to search a front panel for the right button. Pop-up menus offer all choices at a glance and the software ensures that you always make a valid choice. Front-panel operations can also be executed with a mouse and/or keyboard, providing complete user-interface flexibility.

Commitment to Your Investment

Hewlett-Packard is committed to protecting your investment in the HP 16500 series. Since 1987, HP has continuously introduced new and more powerful measurement modules, system software upgrades and analysis/display functionality.

The HP 16500U, 16500A-to-16500B upgrade kit, is an example of HP's commitment to the large installed base of HP 16500A owners. The upgrade kit transforms an HP 16500A frame into a 100 percent compatible, newer generation HP 16500B frame; at just over half of the cost of investing in a new frame.

Integration into Your Windowed, Networked Environment

The HP 16500B networked user interface brings logic analysis to your computing environment. Use the HP 16500H interface module to connect your 16500B system to Ethernet LAN. Then activate the X-Window System interface for remote viewing and control at your workstation or PC. You can even operate an HP 16500B across the Internet.

Obtain Network Access to Your Measurement Data

Easily move captured measurement data and screen images into your computer using the HP 16500H interface module and either the NFS or FTP file protocols. You can obtain captured data in a label-by-label ASCII format. Using the NFS protocol, you can mount the logic analyzer and treat captured or stored data as an extention to your file system. If you are not using the HP 16500B in a networked environment, you can store data and screen images to the MS-DOS®-based floppy disk drive.

Store Setups and Data Quickly with Built-in Mass Storage

It's easy to store and retrieve measurement results and setups with the built-in hard disk drive or 3½-inch floppy disk drive. Both disks are MS-DOS compatible.

Precise Intermodule Measurement Correlation

Run any HP 16500B measurement module independently or combine their capabilities and correlate their acquisitions with 2-ns resolution. The intermodule menu graphically communicates complex arming sequences in an easy-to-understand format.

Use the state analyzer to identify a problem sequence, then arm the timing and oscilloscope modules to trigger only when the measurement context you are interested in occurs.

Key Literature
The HP 16500B Logic Analysis System, p/n 5963-2118E.
The HP 16500B Logic Analysis System Technical Data, p/n 5963-2314E.
HP 16500H Interface Module, p/n 5963-6710E.

Key Specifications and Characteristics

	HP 16550A	HP 16554A[1]	HP 16555A[1]	HP 16556A[1]
Timing analysis rate	Conventional: 250/500 MHz[2] Transitional: 125/250 MHz[2] Glitch: 125 MHz	Conventional: 125/250 MHz[2]	Conventional: 250/500 MHz[2]	Conventional: 200/400 MHz[2]
State analysis rate	100 MHz	70 MHz	110 MHz[3]	100 MHz
Channels/card	102	68	68	68
Channels/timebase	204	204	204	340
Memory depth/channel	4 K/8 K	512k/1024k[4]	1024k/2048k[4]	1024k/2048k[4]
Setup/hold time	3.5/0 ns to 0/3.5 ns adj. in 500 ps steps	3.5/0 ns to 0/3.5 ns adj. in 500 ps steps	3.5/0 ns to 0/3.5 ns adj. in 500 ps steps	3.5/0 ns to 0/3.5 ns adj. in 500 ps steps
Minimum detectable glitch	3.5 ns	3.5 ns	3.5 ns	3.5 ns
Probe input R and C	100 kΩ and ~8 pF	100 kΩ and ~8 pF	100 kΩ and ~8 pF	100 kΩ and ~8 pF
Triggering terms	Patterns: 10; Ranges: 2; Edge and glitch: 2; Timers: 2	Patterns: 10[5]; Ranges: 2; Edge and glitch: 2; Timers: 2	Patterns: 10[5]; Ranges: 2; Edge and glitch: 2; Timers: 2	Patterns: 10; Ranges: 2; Edge and glitch: 2; Timers: 2
Trigger sequence levels	12 in state and 10 in timing	12 in state and 10 in timing	12 in state and 10 in timing	12 in state and 10 in timing
Symbols	Unlimited with HP E2450A Symbols Utility, 1000 otherwise	Unlimited with HP E2450A Symbols Utility, 1000 otherwise	Unlimited with HP E2450A Symbols Utility, 1000 otherwise	Unlimited with HP E2450A Symbols Utility, 1000 otherwise

[1] HP 16554A, 16555A, and 16556A can only be used with the HP 16500B logic analysis mainframe.
[2] Half-channel mode doubles memory depth, doubles maximum conventional timing speed, and doubles maximum transitional timing speed.
[3] For 110-MHz mode only—Single clock edge with qualifiers. 100-MHz mode and below is the same as the HP 16550A.
[4] Memory depth doubles only in timing mode.
[5] Eight pattern recognizers are available in HP 16554A timing modes and HP 16555A timing and 110-MHz state analysis modes.

State and Timing Analysis with a Choice of Depth

The HP 16550-series of state and timing analyzers offer a range of memory depths and state analysis speeds to fit your application. The HP 16550A offers industry-standard state and timing analysis features at an affordable price. The HP 16554A, 16555A, and the new HP 16556A analyzers provide the same acquisition and triggering capabilities as the HP 16550A, but provide the deeper memory needed to capture elusive system crashes.

All HP 16550-series analyzers use the same probing scheme, which makes it possible for you to easily interchange probing interconnections whenever your probing needs change. All HP 16550 series analyzers also connect to Hewlett-Packard's broad and growing selection of preprocessor solutions because the probes are compatible with previous HP state and timing analyzer modules.

Capture State or Timing Data on All Channels

With the HP 16550-series of state and timing analyzers, there is no need to connect special probes to view timing activity. All channels on HP state and timing analysis modules perform either state or timing functions. Set up your HP 16550 series analyzer to perform simultaneous, fully time-correlated state analysis on some channels, and timing analysis on the rest.

Assign channels to capture state timing data without moving probes.

Advanced Trigger Macros Capture Elusive Problems

Both basic and complex state and timing macros are available in the trigger macro library. Macros can be combined to create custom trigger setups.
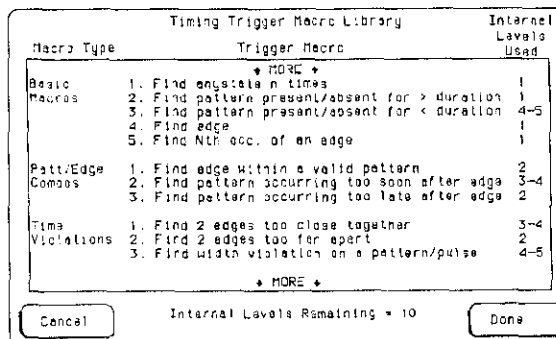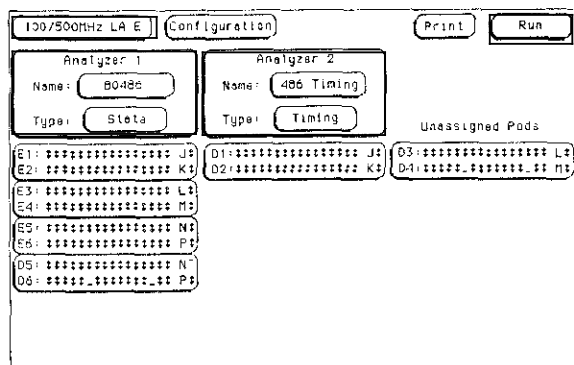

The HP 16550-series timing trigger macro library.

Each trigger macro has a graphic of the measurement and a sentence-like structure to make triggering easy. Set up your triggering in terms of the measurement you want to make rather than in terms of the trigger functions in the logic analyzer.

Families of trigger macros make it easy to pick out just the trigger macro you need, and avoid the hassle of wading through a long list of triggers to find the one you want. Families of trigger macro measurements include:

- Basic macros, including find anystate n times;
- Sequence-dependent macros, including find a n-bit serial pattern;
- Time violation macros, including find an event 2 occurring too soon after event 1.