The HP 16505A couples powerful analysis, the benefits of a windows interface and the measurement capabilities of the popular HP 16500 series logic analysis system.

HP 16505A Prototype Analyzer

Reduce Your Integration and Debug Time

The HP 16505A prototype analyzer helps to quickly solve your toughest design integration and debug problems. The HP 16505A couples powerful analysis, the benefits of a windows interface and the measurement capabilities of the popular HP 16500C logic analysis system in one easy-to-learn and use measurement system. You can view your system's activity from analog signals to source code, all in one instrument.

Designed Around the Way You Work

HP has designed the prototype analyzer around the way you and your team work. You can move rapidly between post-capture analysis and real-time capture of another trace as you test theories about the nature of system crashes. Recall previously-stored measurements to conduct further analysis, then use the same instrument configuration to capture new data. Or save a measurement for later analysis with a colleague.

The HP 16505A is based on the "measurement server" concept, which couples real-time measurement functionality and analysis with standard interfaces to other development tools. The HP 16505A is a turnkey system. You don't need to worry about operating system compatibility or computer configurations; just connect a PC SVGA monitor to the HP 16505A and you are ready to go.

Leading-edge networking technology enables you to access the prototype analyzer at your bench or from a remote location, using the X-Window System. You can remotely control and view the entire measurement system from your office or from a remote site. The HP 16505A also acts as an X-Window System server, so you can view your X-Window-compatible applications right at your lab bench. The prototype analyzer also supports network printers.

Access HP 16505A data from your host computer using FTP or NFS. The HP 16505A acts as both an NFS client and server, so the prototype analyzer can dynamically link to source files stored on your file server. Perform off-line analysis using the file-in and file-out tools. The file-out tool allows you to select the data you want to export to a host computer. Time correlation and symbolic links remain intact.

The measurement server architecture makes possible fast update rates for many real-time measurements. A fast update rate is especially important when you need to gather data to develop clues as to the cause of a problem. HP has optimized the data processing inside the HP 16500C/16505A system for update rate, a task not possible with host-based analysis software that runs on multiple platforms.

View the Data in the Format Best Suited to Your Needs

The HP 16505A is a measurement system for the entire design team. Simultaneous viewing of source, trace and waveform displays enable you to quickly track down cross-domain cause and effect. Move from chart or histogram overview of bus activity to detailed timing or analog waveforms in seconds, using the HP 16505A's visual measurements paradigm. Global time-correlated markers enable team members to immediately pinpoint events between displays. Local markers are available for further analysis.

Quickly Create, View and Modify Measurements

Rapidly set up and tear down measurements as you test ideas about the nature of your system crashes. The HP 16505A's measurement tools are always available at your fingertips. All measurement tools are stored in the "toolbox" located on the main window. You simply "drag and drop" the appropriate instrument, analysis or display tool onto the workspace and connect the tools together. Instrument tools are similar to the popular HP 16500 series measurement module configuration, format, and trigger menus. Enhancements to the format and trace windows such as bit reordering and trigger libraries enable you to set up the instrument faster.

Real-time Software Analysis

Software engineers can view real-time traces as source-line-referenced displays, with full symbolics. Use deep memory and multiple source displays to view both the cause and effect of subtle hardware/software integration problems. Trigger the analyzer directly from the source trace. Use built-in search functions to jump to the next occurrence of a source-code instruction. Use bookmarks to keep track of events in the trace.

Track the execution of variables in embedded systems graphically, using the chart display. Choose the variables you want to display from a built-in symbol browser. Popular symbol formats are supported (see page 378).

Use powerful post-processing sequencing capabilities to search or filter megabytes of trace data quickly. Post-processed filtering can be used along with inverse-assembly to provide a high-level overview of code flow. Analyze real-time traces off-line using the file-in/file-out tools.

Extensive Hardware Analysis

Hardware engineers will appreciate the large waveform displays for viewing timing and analog activity. See up to 100 individual timing waveforms at one time, correlated with analog traces. Instantly size your viewing area with a swipe of the mouse. Center the trace about markers. Choose the marker read-outs you need to see, then use the rest of the screen space for data display.

Unleash the Power of Your HP 16500C Logic Analyzer

The HP 16505A prototype analyzer works in conjunction with popular measurement modules in the HP 16500C to provide a complete prototype analysis environment. You have full control over the HP 16500C and its measurement modules from the prototype analyzer. A high-speed data port between the HP 16500C and the prototype analyzer ensures fast screen update rates. Supported measurement modules include:

- HP 16517A/18A 4-GHz Timing/1-GHz State; 64K/128K depth
- HP 16522A 200 MVector/sec Pattern Generator; 258K depth
- HP 16532A 1-GSa/s Digitizing Oscilloscope; 8K depth
- HP 16533A 1 GSa/s Digitizing Oscilloscope; 32K depth
- HP 16534A 2 GSa/s Digitizing Oscilloscope; 32K depth
- HP 16535A MultiProbe 2-Output Control Module
- HP 16550A 100-MHz State/500-MHz Timing; 4K depth
- HP 16554A 70-MHz State/250-MHz Timing; 512K depth (204 ch. max.)
- HP 16555A/D 110-MHz State/500-MHz Timing; 1M/2M depth (204 ch. max.)
- HP 16556A/D 100-MHz State/400-MHz Timing; 1M/2M depth (340 ch. max.)

The prototype analyzer is designed to sit on top of the HP 16500C system. The HP 16505A includes everything you need to begin making measurements, except a PC-compatible SVGA monitor. Remote operation does not require the local monitor except for system setup (for example, entering the IP address or system updates).

Compatibility with Your HP 16500 Series System

Investment

Configuration files, data files and inverse assembly files can all be used as the basis for starting measurements with the prototype analyzer. If you currently own an HP 16500A frame, you can upgrade to an HP 16500C frame using the HP E2479A Upgrade Kit (see pages 400 and 403). HP 16500B frames are supported with an optional HP 16500H interface module.

Time-Correlated Measurements

The data you capture and observe is time-correlated. This means you can maintain timing relationships across measurement domains, such as state, timing and chart. Time-correlation means you can quickly move between windows using markers to uncover hidden relationships in your data.

Multiple, Sizable Windows

The prototype analyzer frees you from the limitations of a single-menu interface. You can view data across multiple windows simultaneously. Each window is sizable up to the entire breadth of your local display at resolutions up to 1024 x 768. (1280 x 1024 resolution requires optional extra video RAM, and requires a monitor that supports this resolution).

Dynamically resize the waveform, histogram and chart displays using the mouse. Simply drag the mouse across the area you want to view in more detail and the window automatically rescales the viewing area for you. Use the right mouse button to instantly return to the previous scaling.

Timing waveforms can be individually sized and colored so you can recognize important channels at a glance. You can size the timing diagrams down to 6 point size to capture a broad view of system activity. Bus values can be displayed inside the waveform.

State listing windows can be sized to the maximum screen dimensions. Vary the data text size to suit your environment. Labels can be dynamically reordered to optimize your viewing area.

Rapidly Pinpoint Problems with Drag-and-Drop Markers

Displays have two local markers and two global markers. Global markers provide time-correlation across multiple displays. As you move a global marker in one window, other data windows will follow. Local markers act as extra resources for measurements specific to the local display.

Find the source of a functional problem quickly by placing a global marker on its occurrence in the list or chart display and use time-correlated global markers to find the exact spot of the occurrence in the waveform display.

Drag-and-drop markers and paned-window marker controls make time-interval measurements easy. Simply drag the marker across the data and drop it where you want, then just read the time or sample value at the top of the window. Add marker functions to search for patterns or display data label values. You can select just the amount of marker data you want presented, using the paned-window slider.
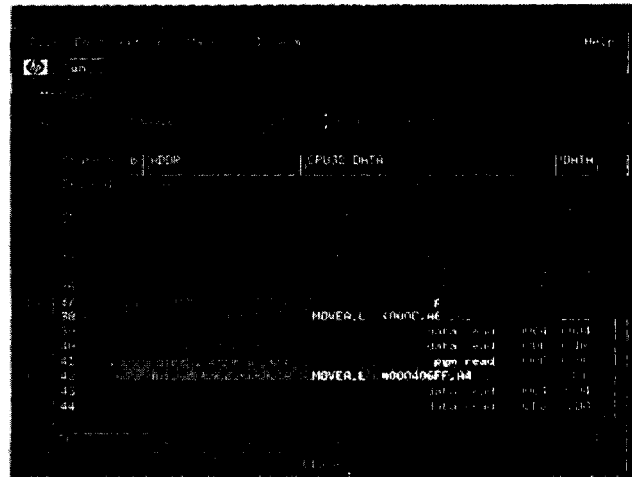
Simultaneously view time-correlated bus, inverse-assembled and source (not shown) trace data. Data columns can be individually reordered or assigned unique color. Traces from multiple processors can be displayed in the same display, or in separate displays, based on your viewing preference.

Instantly size, reorder or assign color to any waveform. Display time-correlated analog and timing traces from any instrument in the same display. Dynamically resize the viewing area with a swipe of the mouse.
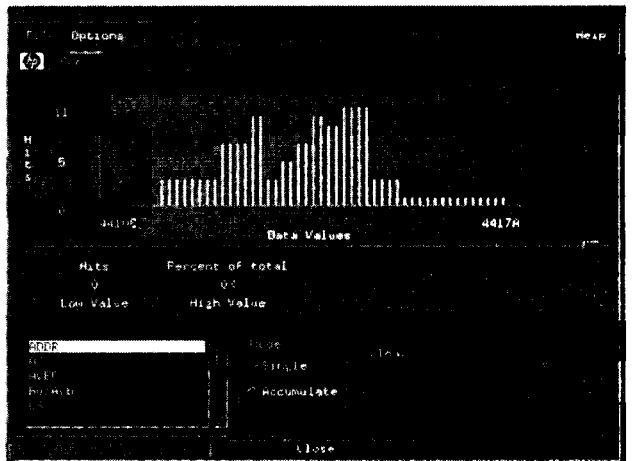
Use the histogram display with color options to gain insight into your system's behavior. In this example, the utilization of the stack address space is displayed.

To have a Hewlett-Packard representative help you place an order or to get more information call **1-800-452-4844**

LOGIC ANALYZERS
Prototype Analyzer (cont'd)
HP 16505A

Simultaneously View Events that Occur Seconds Apart

See both the cause and the result of your system's problem by using the prototype analyzer's multiple, time-correlated windows to view timing events that occur seconds apart. For example, you can view as many time windows in the waveform record as you want by just connecting additional waveform tools to the visual measurements graph.

Instrument tools support multiple display tools. You can examine your data using as many displays as necessary to analyze the measurement. The HP 16505A frees you from the need to switch from menu to menu to trace down an elusive problem.

Use Post-Processing to Find Answers in Real-World Data

See just the address bus values you want using the HP 16505A's pattern filter tool. Or use the pattern filter on the data bus so you can see the data values that correspond to a variable value.

The pattern filter is placed between the source of the measurement data and one or more display tools. It lets you filter the data going to the display tool, so you view only the data of interest.

The flexible architecture of the prototype analyzer also allows you to view data before and after filtering. You can cascade pattern filters to get to just the data you want. In all cases, the data is time-correlated.

The pattern filter can be used with any instrument tool from analog to state analysis. The outputs of two pattern filters can be combined to create unique displays using the X-Y chart display tool. For instance, you can track the value of a variable across time and display the results only when certain conditions (such as reads or writes) are valid.

Use the file-out tool to conduct proprietary data analysis by directing the output of pattern filters to a local or remote file system. Data can be brought back into the prototype analyzer for further analysis and filtering using the file-in tool.

The Power to Debug Complex Multiprocessor Systems

Customize the way you view the activity in your multiprocessor systems. Data captured from any processor or bus can be viewed in any display. Create unique timing or listing displays that show just the data you need to see. Each display window can be given a descriptive name that distinguishes it from others.

Multiple instruments can input data into a single display. You have complete control over how you want to display the data in each window to maximize your viewing area.

Use bookmarks in the listing display to keep track of events as you move through deep traces. You can quickly jump back to a bookmark as you track down problems. For further convenience, bookmarks can be named.

Key Product Characteristics

HP 16500-Series Support: HP 16500B or 16500C frame supported. Connection to HP 16500B frame requires the installation of an HP 16500H interface module. (The HP 16500H does not require a measurement slot.)

Printer Support: Parallel I/O interface supports PCL (B & W or color) and Postscript printers. PCL (B & W or color) or Postscript networked printers are also supported. TIF, PCX and Postscript image files can be created. ASCII-tabular data files (direct print files not available) can be created from the Listing display or from the file-out tool.

Network Protocols Supported: 15-pin AUI or RJ-45 physical Ethernet connections, TCP/IP, FTP, NFS (client and server), Telnet (in and out) and X-Windows (client and server). The HP 16505A can act as an X-server.

Key Literature

The HP 16500C Logic Analysis System and HP 16505A Prototype Analyzer Product Overview, p/n 5965-3187E

Configuration Guide, HP 16500C Logic Analysis System and Measurement Modules, HP 16505A Prototype Analyzer and Toolsets, p/n 5965-3185E

View the same timing trace in multiple windows. The bottom window provides an overview of the entire trace, while the top window shows a zoom view of a specific area.
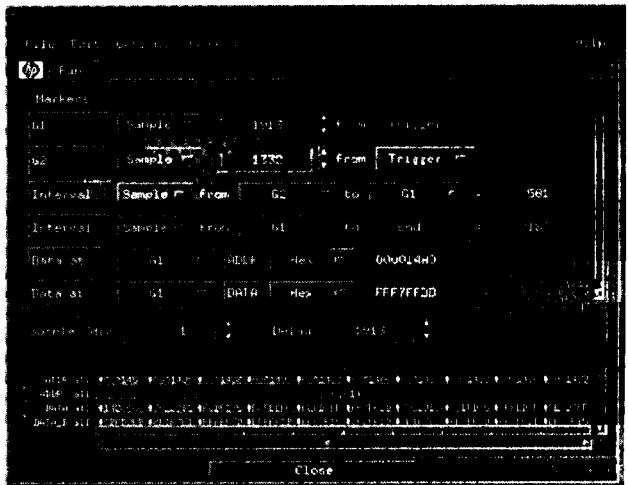
Powerful marker and search functions are available in every display window. You can search for combinations or sequences of patterns, using either the markers or "go-to" functionality.
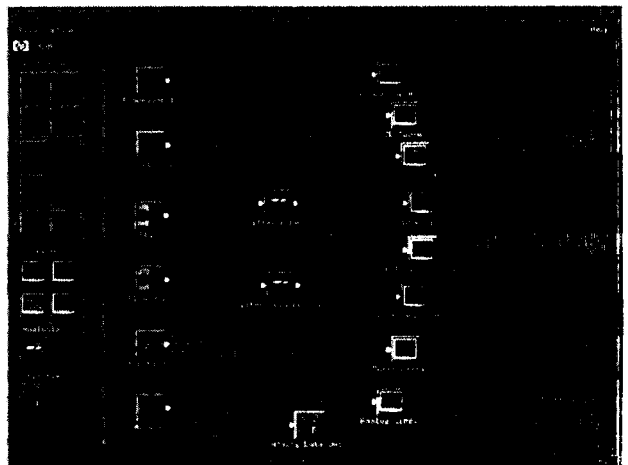
The HP 16505A is the ideal debug tool for multiprocessor systems. View your system's behavior in as many different displays as you need, or create just one display with data captured from any processor.