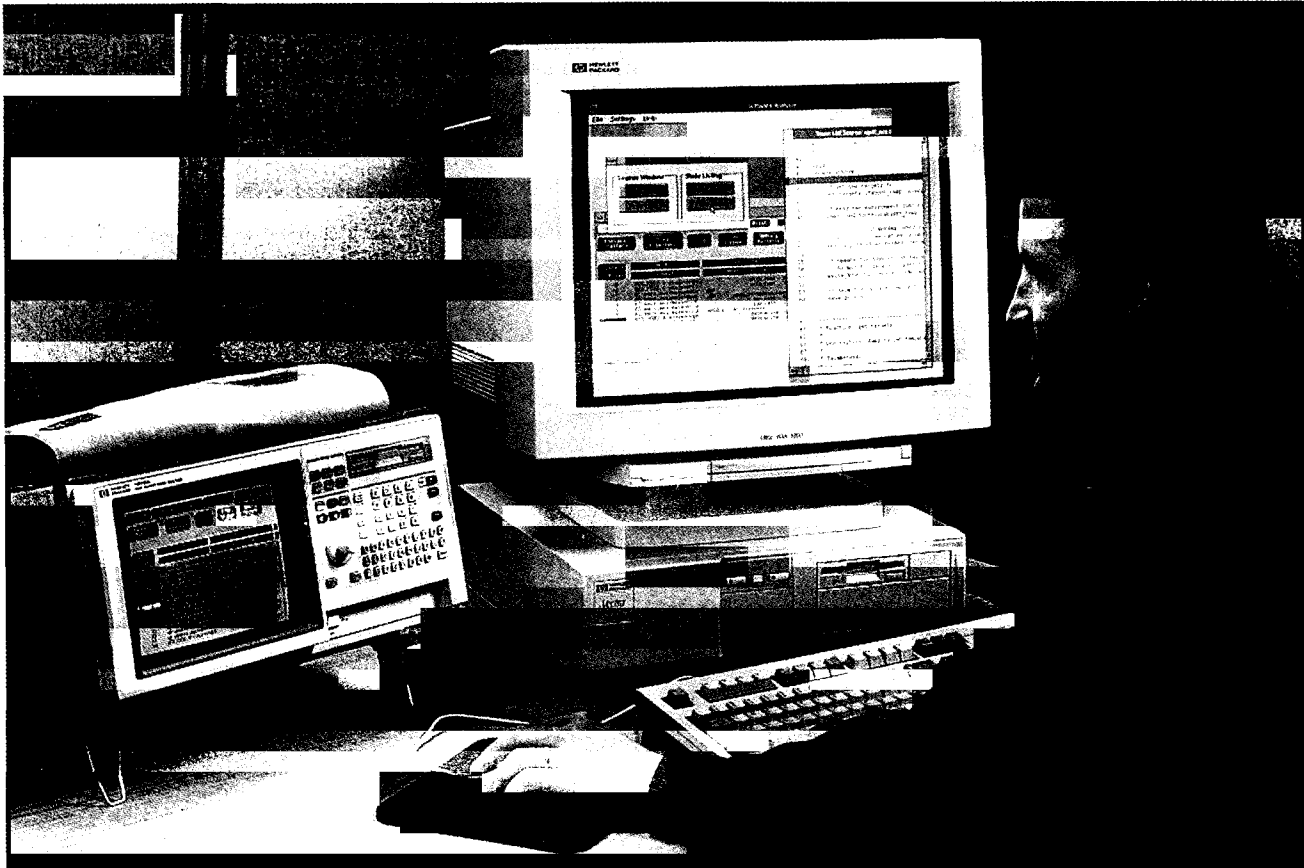


HP 1670D
HP 1671D
HP 1672D



Deep Memory Logic Analyzers Help You Identify the Root Cause of Difficult Problems Fast

- 64K standard acquisition depth with optional 1M depth
- Broad microprocessor support and advanced inverse assemblers
- High-level source code and symbol linkage
- Ethernet LAN interface for networked operation
- State and timing analysis mixed display

Get the Whole Picture with Deep Memory

Deep memory can be a valuable logic analyzer feature for solving difficult problems in embedded microprocessor systems. It saves time you might otherwise spend taking multiple traces to piece together a complete picture of prototype behavior. Deep memory can also reduce the need to set up multilevel triggers because you don't have to be as precise about the data you capture. The HP 1670 series logic analyzers have 64K samples of memory depth that can be extended to 1M samples as a purchase option.

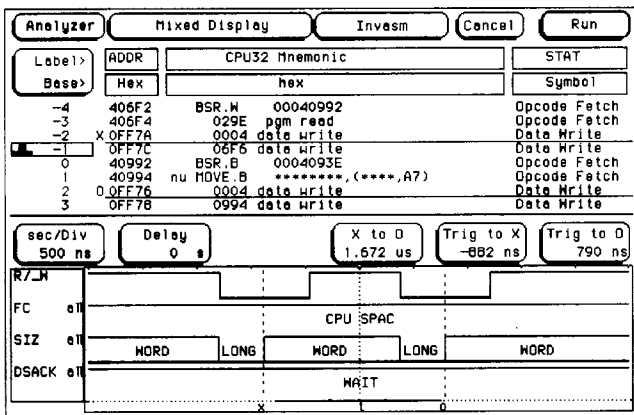
Priced for Your Budget

The most outstanding feature of our HP 1670 models is not their memory depth. It's the low price you will pay for them. Full-featured, deep memory logic analyzers at widths of up to 136 channels have never cost less. (See page 399.)

Depth Makes a Measurement Difference

The HP 1670 series logic analyzers can take real-time code traces showing cause and effect events separated by hundreds of thousands of microprocessor instructions. Having a trace that long can be very important when you need to look through nested interrupt service routines and other lengthy sections of code to find answers. And, with the added depth, you won't have to worry about program loops that can quickly fill the program buffer in a normal logic analyzer.

On the hardware side, when using an HP 1670D series logic analyzer with the deep memory option, the half-channel conventional timing mode doubles the acquisition memory depth to 2M. This lets you capture waveforms as long as 8ms with 4-ns resolution. Even longer time intervals can be captured at slower sample rates.



Code execution and hardware activity can be displayed together with time correlation and synchronized markers to show cause/effect relationships.

Logic Analyzers

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HP 1670 Series Benchtop Logic Analyzers with Deep Memory (cont'd)

HP 1670D
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80486 Inverse Assembly Options	
Code Reads	
Unexecuted Prefetches:	Suppress
Jumps:	Show
Cells and Returns:	Show
Other Instructions:	Show
Memory Reads:	Suppress
Memory Writes:	Suppress
I/O Reads:	Show
I/O Writes:	Show
Special Cycles:	Show
Int Ack Cycles:	Show
Code Synchronization	
Start From:	Byte 0/4/8/C
Default Size:	Size 16
	Align
Mode:	Real
IDT Start:	00000000
IDT Size:	3FF
	Done

Advanced inverse assemblers let you choose the information you want to display and conceal the rest.

The Broadest Microprocessor and Bus Support

Hewlett-Packard and its third-party partners have the largest array of microprocessor and bus support packages of any logic analyzer vendor. The chances are good that we have the hardware interface that you need and an inverse assembler to work with it. (See pages 390 through 393.) Many of the Motorola and Intel microprocessor interfaces come with advanced inverse assemblers that let you filter a code trace to show only what you want to see.

These support packages work with HP 1660 series and HP 1670 series logic analyzers as well as the HP 16500C logic analysis system. Common processor support packages simplify equipment issues when your team is using more than one logic analyzer.

See Software Traces In Terms of Your Source Code

Most of the software that runs in embedded systems today starts as code written in a high-level language. The fastest way to confirm that an algorithm works correctly or to isolate a software defect, is to see executed code at the source level. The HP B3740A software analyzer correlates the real-time software trace captured by a state analyzer with your high-level source code on a line for line basis.

The HP B3740A software analyzer runs on MS-DOS®-based PCs, Sun workstations, and HP 9000 series 700 workstations. Your computer connects to the logic analyzer via Ethernet LAN and displays side-by-side windows of your source code and the inverse assembled state listing. The software analyzer highlights the line of source code that corresponds to the current line in the state listing and tracks as you move through the listing. Symbolic information is also integrated into state listings so you can read the symbolic names instead of address numbers. The HP B3740A software analyzer makes those conversions for you. (See page 375 for more information.)

Networked Operation Made Easy

We've tried to make things simple when it comes to networking your HP 1670 series logic analyzer. The Ethernet LAN interface comes as standard equipment. Both thinLAN (BNC) and twisted pair (RJ-45) connectors are on the instrument so you don't have to worry about using a MAU, or converting media types. After making the physical connection, just enter an IP address and the gateway address into a front-panel menu. Then, you are ready to use the logic analyzer from a computer across your local or wide area network. The TCP/IP Ethernet protocol suite is supported along with FTP and NFS file transfer protocols and X-Window system (X11R5) graphical interface protocol.

Key Specifications and Characteristics for HP 1670 Series Logic Analyzers

State and Timing Channels

HP 1670D: 136
HP 1671D: 102
HP 1672D: 68

State Analysis Speed: 100 MHz in all modes

State/Timing Memory Depth (state analysis depth is halved when time tags are turned on)

Standard Depth: 64K samples on all channels, 128K samples on half channels (timing mode only)

Optional Depth: 1M samples on all channels, 2M samples on half channels (timing mode only)

Setup/Hold Time: 3.5/0 ns to 0/3.5 ns adjustable in 500-ps increments

Timing Analysis Modes and Speeds

Conventional: 125 MHz on all channels, 250 MHz on half channels

Minimum Detectable Glitch Width: 3.5 ns

Probe Input R&C: 100 kΩ and ~8pF

Trigger Resources

Patterns: 10

Edge and Glitch Terms: 2

Ranges: 2

Timers: 2

Trigger Sequence Levels: 12 with state analysis and 10 with timing analysis

Trigger Macros: 23 pre-defined trigger sequences with graphical representations and plain language descriptions

Mass Storage: Hard disk drive and 1.44-MB flexible disk drive

Ethernet LAN Interface: Standard equipment; twisted pair and coaxial connectors

OS Boot Method: Flash ROM

Key Literature and Ordering Information

The HP 1660 and 1670 Series Benchtop Logic Analyzers
Color Brochure, p/n 5964-3665E

The HP 1660 Series Benchtop Logic Analyzers
Technical Specifications, p/n 5964-3664E

The HP 1670 Series Benchtop Logic Analyzers
Technical Specifications, p/n 5964-3666E

See page 399 in this catalog, or the above literature for ordering information.

HP 16505A Prototype Analyzer and Tool Sets

Product	Price
16505A Prototype Analyzer—requires HP 16500C	\$4,995
B4600A Software Performance Analysis Toolset	\$2,040
B4601A Serial Analysis Toolset	\$950
B4620A Software Analysis Toolset	\$2,040
E3491A Intel Pentium® Processor Probe	\$7,650

HP 16500 Series Modular Logic Analyzers

Product	Price
16500C Logic Analysis System Mainframe	\$9,500
16501A Logic Analysis System Expansion Frame	\$5,345
E2474A 200 MHz State Analysis Module	\$10,500
16517A 16-Channel 4 GHz Timing/1 GHz State Master Card	\$14,025
16518A 16-Channel 4 GHz Timing/1 GHz State Expander	\$13,515
16522A 40-Channel 200-MVector/s Pattern Generator Card*	\$6,580
16533A 2-Channel 1 GSa/s Oscilloscope Card	\$9,130
16534A 2-Channel 2 GSa/s Oscilloscope Card	\$12,035
16550A 102-Channel 100 MHz State/500 MHz Timing Card with 4k Acquisition Memory/Channel	\$9,630
16554A 68-Channel 70 MHz State/250 MHz Timing Card with 512k Acquisition Memory/Channel	\$11,220
16555A 68-Channel 110 MHz State/500 MHz Timing Card with 1M Acquisition Memory/Channel	\$14,040
16556A 68-Channel 100 MHz State/400 MHz Timing Card with 1M Acquisition Memory/Channel	\$14,535
16555D 68-Channel 110 MHz State/500 MHz Timing Card with 2M Acquisition Memory/Channel	\$15,765
16556D 68-Channel 100 MHz State/400 MHz Timing Card with 2M Acquisition Memory/Channel	\$16,250

* Various stimulus pods can be ordered separately. See page 384.

Product Options

Consult the appropriate product data sheet or contact your local HP sales office for a list of all options available for a specific product.

HP 1660 Series Benchtop Logic Analyzers

Product	Price
1660C 136-Channel 100 MHz State/500 MHz Timing	\$11,990
1660CS 136-Channel 100 MHz State/500 MHz Timing with Integrated 2-Channel 1-GSa/s Oscilloscope	\$18,950
1661C 102-Channel 100 MHz State/500 MHz Timing	\$9,990
1661CS 102-Channel 100 MHz State/500 MHz Timing with Integrated 2-Channel 1-GSa/s Oscilloscope	\$16,950
1662C 68-Channel 100 MHz State/500 MHz Timing	\$7,990
1662CS 68-Channel 100 MHz State/500 MHz Timing with Integrated 2-Channel 1-GSa/s Oscilloscope	\$14,950
1663C 34-Channel 100 MHz State/500 MHz Timing	\$5,990
1663CS 34-Channel 100 MHz State/500 MHz Timing with Integrated 2-Channel 1-GSa/s Oscilloscope	\$12,950
1664A 34-Channel 50 MHz State/500 MHz Timing	\$4,990

Option 015 Ethernet LAN interface can be added to any 1660 series logic analyzer (except 1664A) for an additional charge at the time of purchase.

HP 1670 Series Deep Memory Logic Analyzers

Product	Price
1670D 136-Channel 100 MHz State/250 MHz Timing with 64K Memory Depth and Ethernet LAN	\$16,400
Opt 30 Extend memory depth to 1M samples/channel	+\$2,850
1671D 102-Channel 100 MHz State/250 MHz Timing with 64K Memory Depth and Ethernet LAN	\$13,400
Opt 30 Extend memory depth to 1M samples/channel	+\$2,100
1672D 68-Channel 100 MHz State/250 MHz Timing with 64K Memory Depth and Ethernet LAN	\$10,400
Opt 30 Extend memory depth to 1M samples/channel	+\$1,550