

# Agilent E2494S

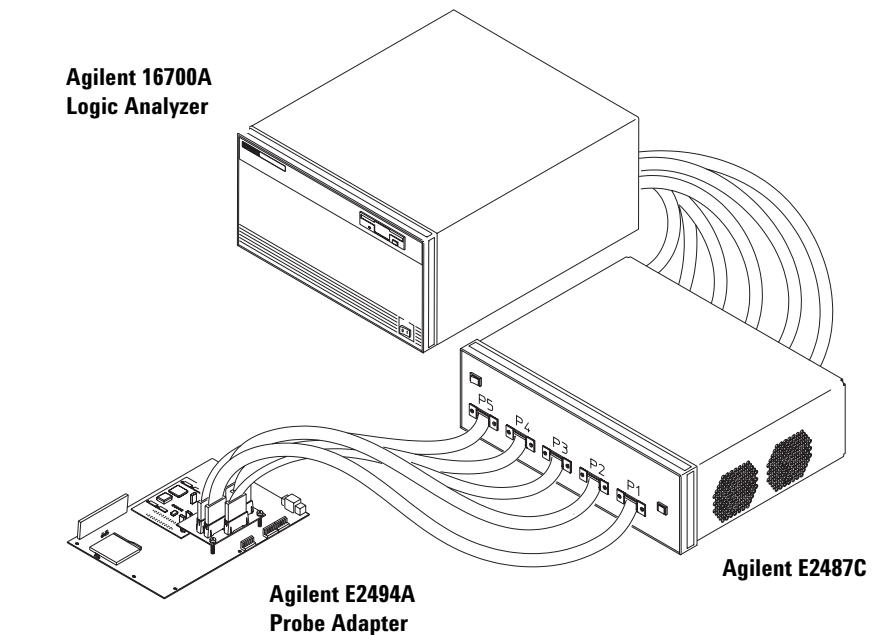
## Analysis Probe for the Pentium® II Mobile Module or Processor

### Product Overview

The Agilent Technologies E2494S analysis probe, with its transaction tracker and inverse assembler, allows you to easily trace the operation of either the Pentium II Instrumented Mobile Module or Instrumented Mobile Processor. Bus transactions are summarized in the state listing display, allowing rapid interpretation of bus operation. Instruction execution, disassembled into familiar Intel mnemonics, may also be displayed. The utility and usability of the E2494S can greatly reduce your time-to-insight into critical Pentium II Mobile Module or Mobile Processor system problems. The analysis probe connects easily to either the Instrumented Mobile Module or the Instrumented Interposer Board with a 190 pin Mictor connector interface. The E2494S utilizes the power of the Agilent 16700A/702A logic analyzer to present trace and waveform views of the processor's bus.

### Displaying Transactions

The E2494S keeps track of the Pentium II processor bus by presenting a state listing of bus activity grouped by complete transactions. Because several transactions may be pending on the Pentium II processor bus, the E2494S analysis probe's transaction tracker monitors the start and end of each bus phase. Each transaction display starts with the request type, such as memory read, I/O write, or code read.



**Figure 1. The Agilent E2494S — Analysis probe and probe adapter provides easy connection from the 16700A/702A logic analysis systems to the target system.**

### Selecting Transactions

Focus your analysis of the activities on the Pentium II processor bus by coloring those transactions that give you the best view of the problem. Included with the E2494S is a complete set of filter options that allows you to selectively list transactions

by agent and transaction type. For example, you can list only branch trace messages originating from CPU 0. The filter dialog menu lets you use color to emphasize either transaction type or agent ID.



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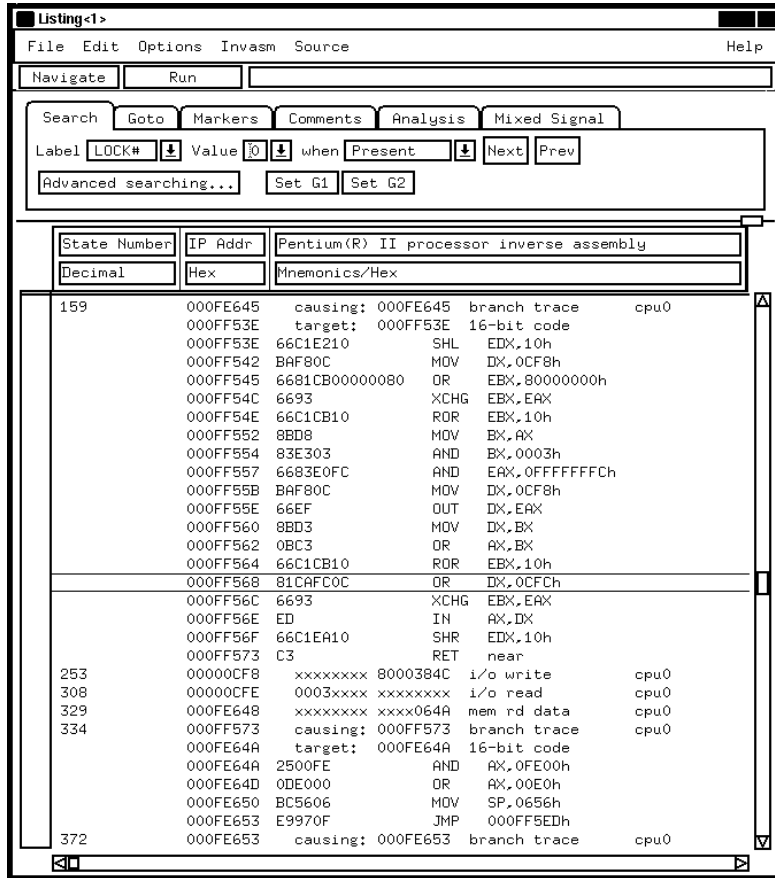


Figure 2. Inverse Assembly Listing

### Viewing Instructions

The E2494S includes an inverse assembler that displays code execution in familiar Intel mnemonics. The inverse assembler takes advantage of the Pentium II processor's branch trace message (BTM) bus cycles. BTMs are special bus cycles issued by the CPU (when enabled) that indicate the "from" and "to" addresses of a branch. Using BTMs, the E2494S inverse assembler displays a listing of only the instructions executed by the processor(s). For inverse assembly, an emulation probe, such as the E5900A, is necessary to enable BTMs and disable caches.

### Identifying Processors

The E2494S filter options allow you to color instructions by processor. Determining which processor executed a particular code segment in a multiprocessor system is simple. As you follow the assembly instruction listing on the 16700A logic analyzer's display, the color of the trace changes when another processor takes an execution branch. Priority agent (I/O) activity is also displayed in color.

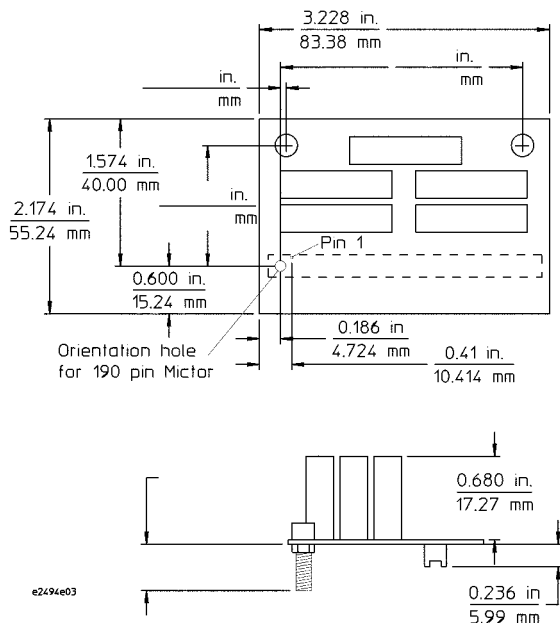


Figure 3. Agilent E2494A Probe Adapter Dimensions

## Features

### Display Filter Options

Selectively display the most important transactions by using state listing filters.

Agents

CPU 0: Show/Suppress

CPU 1: Show/Suppress

CPU 2: Show/Suppress

CPU 3: Show/Suppress

Priority: Show/Suppress

### Transaction Types

Deferred Replies: Show/Suppress

Interrupt Acknowledge: Show/Suppress

Special Transactions: Show/Suppress

Branch Trace Messages: Show/Suppress

I/O Reads: Show/Suppress

I/O Writes: Show/Suppress

Memory Read & Invalidate: Show/Suppress

Memory Data Reads: Show/Suppress

Code Reads: Show/Suppress

Memory Writes: Show/Suppress

Memory Writebacks: Show/Suppress

Note: Agents and transaction-type filter terms are combined in display by "ANDing."

### Clock Qualification Expanded Mode

Captures all snoop stalls and data wait states.

### Compacted Mode

Maximizes logic analyzer memory use by hiding snoop stalls and data wait states.

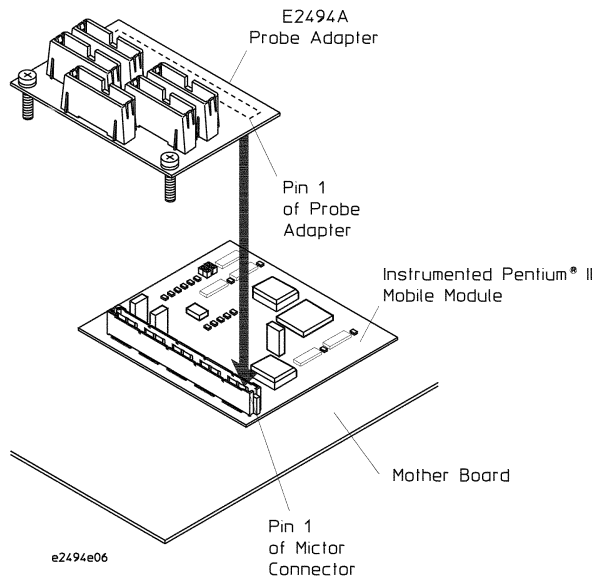
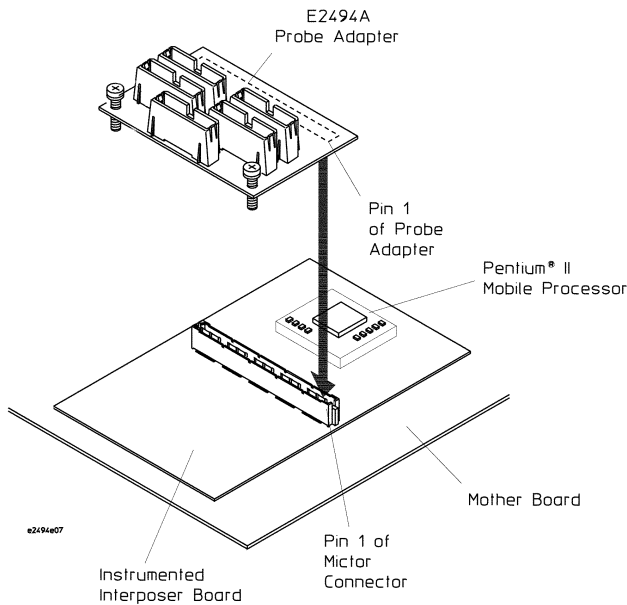


Figure 4. Pentium II Instrumented Mobile Module Installation



**Figure 5. Pentium II Instrumented Interposer Board Installation**

## Specifications

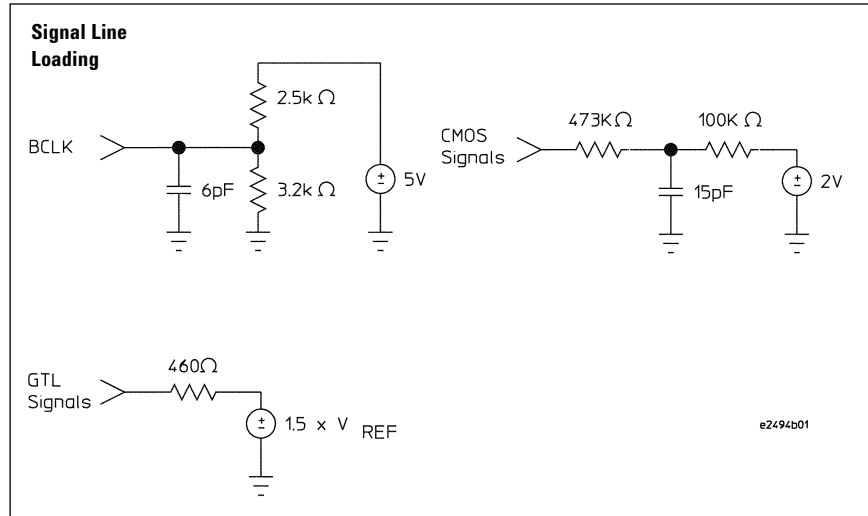
<b>Analysis System Components</b>	E2494S Analysis Probe E2494A Probe Adapter
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<b>Processor Package</b>	190 pin Mictor connector (plug) on Pentium II Instrumented Mobile Module and Pentium II Instrumented Interposer Board
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<b>Logic Analysis Pods Required</b>	12 (compatible with 3-card 16557D, 3-card 16555A/D, or 3-card 16556A/D logic analyzer modules for the 16700/702A logic analysis system)
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<b>Analysis Probe Clocking Modes</b>	State/Clock-Expanded Mode State/Clock-Compacted Mode (Logic analyzer stores bus state on each qualified BCLK.)
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<b>Preprocessor Cable Length</b>	Approximately 1 meter
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<b>Clock Frequency</b>	66 MHz maximum for external BCLK
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<b>Target Signal for Amplitude</b>	800 mV p-p minimum all GTL + signals
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<b>Power Requirements</b>	Internal power supply is included with pre-processor
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<b>Environmental Temperature</b>	Operating: 20 to 30 °C (+68 to +86° F) Non operating: -40 to 70° (-40 to +158°F)
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<b>Altitude</b>	Operating: 4,600m (15,000 ft) Non operating: 15,300 m (50,000 ft)
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<b>Humidity</b>	Up to 90% non-condensing (Avoid sudden, extreme temperature changes that could cause condensation within the instrument.)
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## Ordering Information

### Agilent E2494S

Analysis probe and probe adapter for the Intel Pentium II Instrumented Mobile Module or Instrumented Interposer Board. Requires 5900A Option 510 emulation probe or E5901A Option 510A emulation module or equivalent.

Works with Agilent 16700A/702A mainframe with any set of the logic analysis card configurations listed below:

- 16557D (required for 133 MHz operation - 3 cards required)  
2-MSa, 135-MHz state/500-MHz timing
- 16555A/D (3 cards required) 1 MSa/2 MSa,  
110-MHz state/500-MHz timing logic analyzer module
- 16556A/D (3 cards required) 1 MSa/2 MSa,  
100-MHz state/400-MHz timing logic analyzer module

Main Frames (required)

16700A or 16702A logic analysis system mainframe

B4600B (optional) system performance analysis Emulation Probe or Module  
(Recommended, a run-control unit is required for inverse assembly.)

- E5900A Option 510 emulation module
- E5901A Option 510 emulation probe

### Related Literature

<i>Agilent 16600A and 16700A Series Logic Analysis System</i>	5966-3107E
<i>Agilent Technologies and American Arium Deliver a Highly Integrated Debug Environment</i>	5968-1661E
<i>Agilent E2487C Analysis Probe and E2492B/C/D Probe Adapters</i>	5968-2421E

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