



Agilent Technologies E2487C Analysis Probe and E2492B/C/E Probe Adapters for Intel Celeron™, Pentium® II, III, and Pentium II, III Xeon™ Processors

Product Overview

Requires Agilent 16700A or 16702A
Logic Analysis System

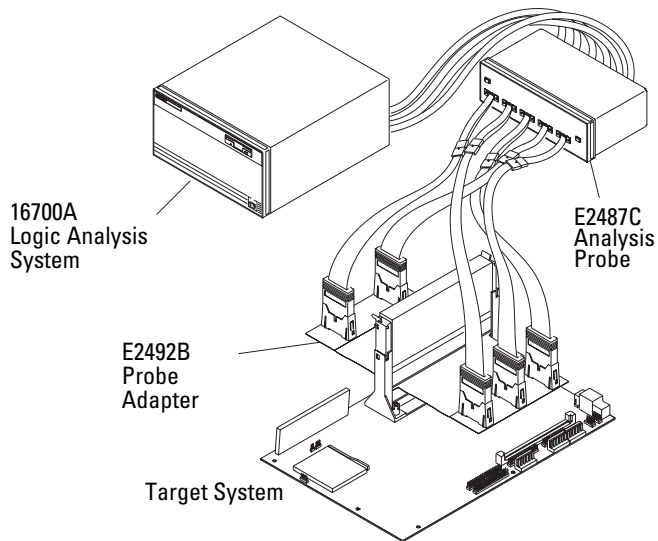


Figure 1. The Agilent E2487C Analysis Probe and E2492B Probe Adapter Connecting the Agilent 16700A Logic Analysis System to the Target System

The Agilent Technologies E2487C analysis probe can greatly reduce your time to insight into critical Intel Celeron, Pentium II, III, and Pentium II, III Xeon processor-based system problems.

The E2487C uses the power of the Agilent Technologies 16700A/702A logic analysis system to present trace and state waveform views of the processor's bus.

The E2487C, with its transaction tracker and inverse assembler, allows you to easily trace the operation of a multiprocessor system. Bus transactions are summarized in the state listing display, allowing rapid interpretation of bus operation. Instruction execution, disassembled into familiar Intel mnemonics, including MMX instructions, can also be displayed.

Displaying Transactions

The E2487C analysis probe keeps track of the processor bus by presenting a state listing of bus activity grouped by complete transactions. Because several transactions can be pending on the processor bus, the 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.

Selecting Transactions

Focus your analysis of the activities on the processor bus by coloring those transactions that give you the best view of the problem.

Included with the E2487C is a complete set of filter options that allow 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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MMX is a trademark of Intel Corporation.
Xeon is a trademark of Intel Corporation.
Celeron is a trademark of Intel Corporation.



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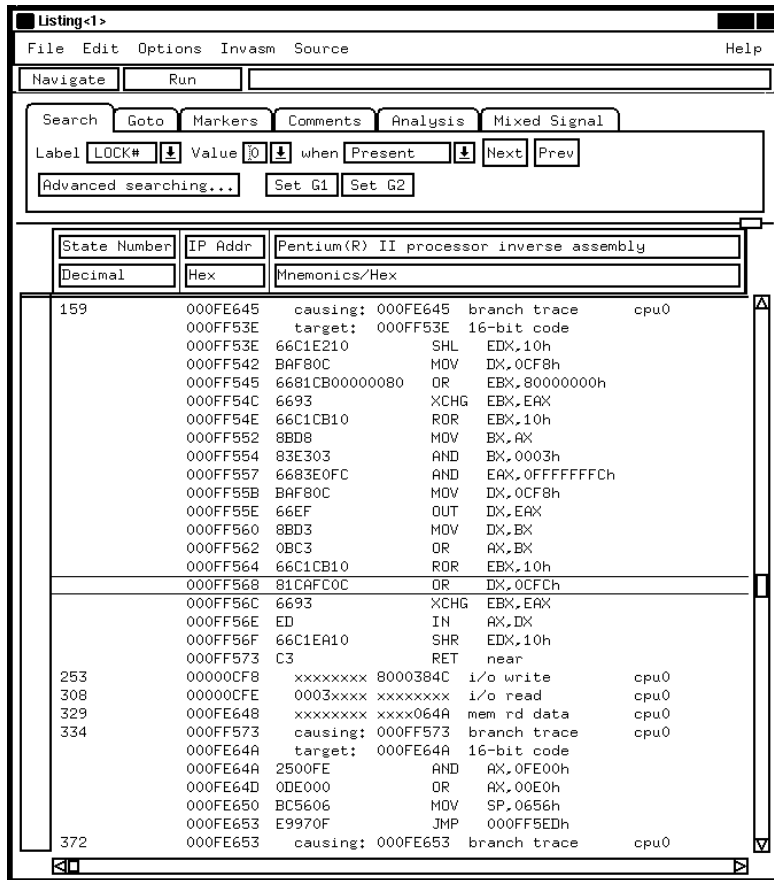


Figure 2. Inverse Assembly Listing Displays Code Execution in Familiar Intel Mnemonics

Viewing Instructions

The E2487C includes an inverse assembler that displays code execution in familiar Intel mnemonics.

The inverse assembler takes advantage of the 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 E2487C inverse assembler displays a listing of only the instructions executed by the processor(s).

For inverse assembly, some form of run-control is necessary to enable BTMs and disable caches. See "Ordering Information" for Agilent Technologies run-control model numbers.

Identifying Processors

The E2487C filter options allow you to color instructions by processor. Determining which processor executed a particular code segment in a multi-processor 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.

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.

SC 242, SC 330, and 370 Pin PGA Probe Adapters

The Agilent Technologies E2492B/C/E probe adapters provide a convenient way to connect to Pentium II, III, Xeon, and Celeron processors. Because the E2492B/C/E probe adapters are fabricated using flexible circuit board technology, they can conform to the probing constraints imposed by adjacent processors, heat sinks, and other tall components.

Figures 3, 4, and 5, illustrate the ability of this unique probing solution to accommodate other components in your system.

The overall dimensions of the E2492B/C/E probe adapters are shown in figures 6, 7, and 8.

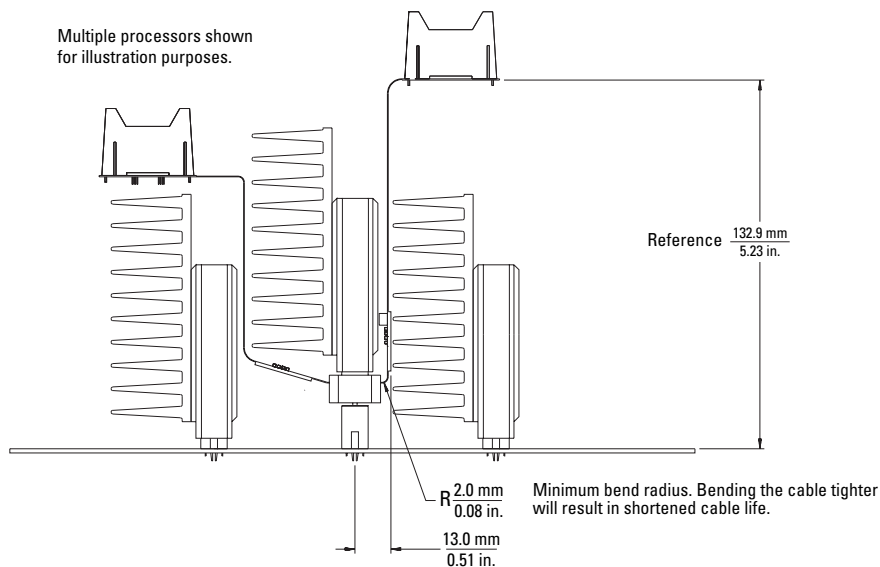


Figure 3. Installed View of E2492B SC 242 (Slot 1) Probe Adapter

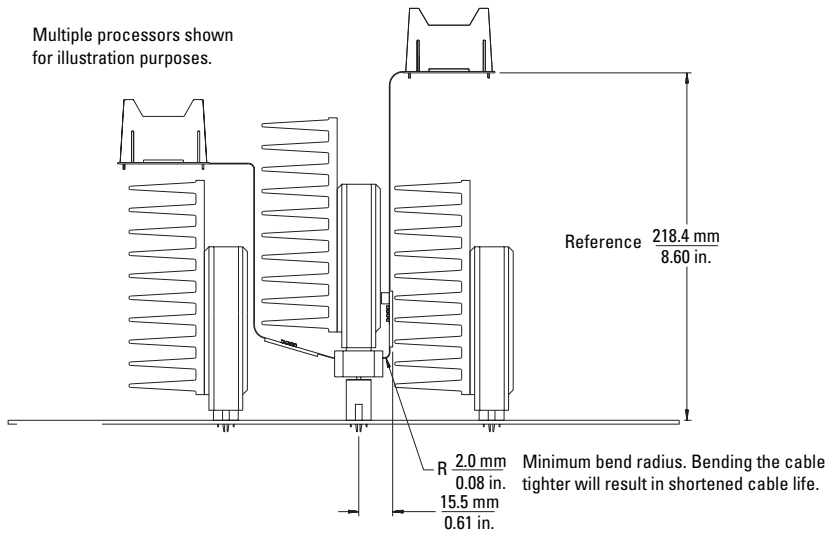


Figure 4. Installed View of E2492C SC 330 (Slot 2) Probe Adapter

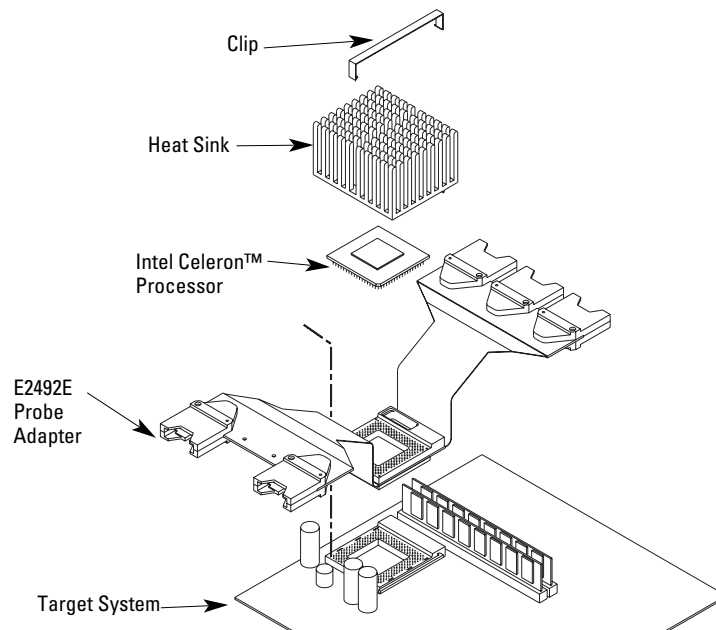


Figure 5. Installation View of E2492E 370 Pin PGA Probe Adapter Dimensions

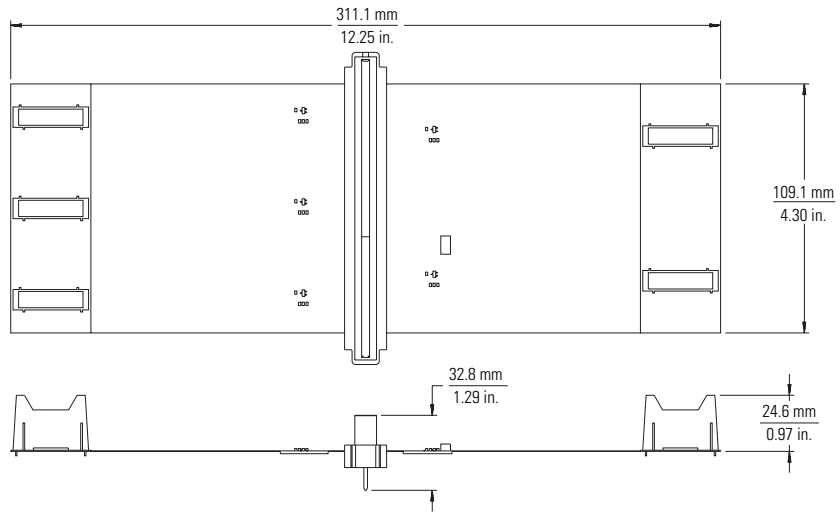


Figure 6. E2492B SC 242 (Slot 1) Probe Adapter Mechanical Dimensions

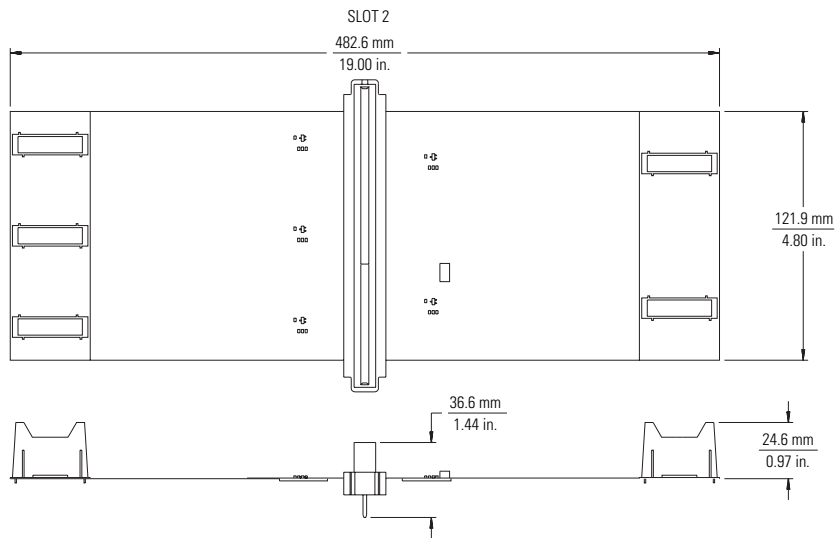


Figure 7. E2492C SC 330 (Slot 2) Probe Adapter Mechanical Dimensions

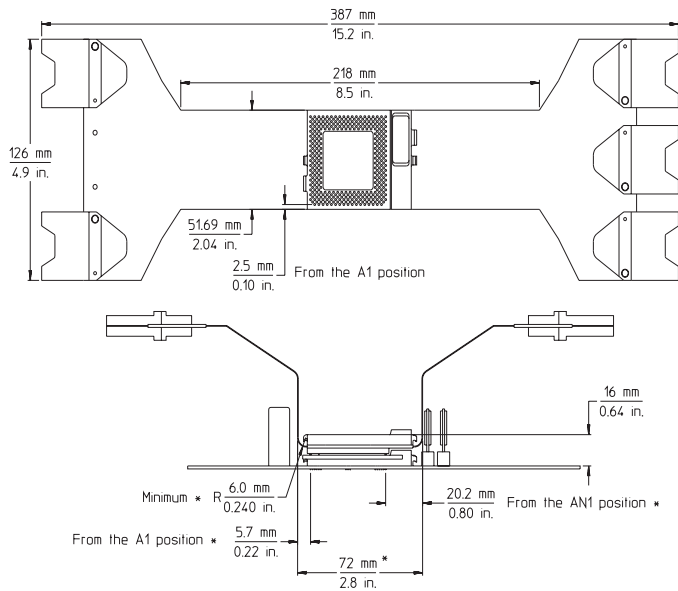
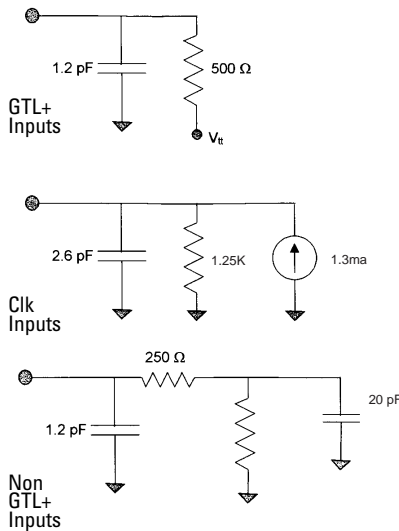


Figure 8. E2492E 370 Pin PGA Probe Adapter Mechanical Dimensions

Operating Characteristics

Analysis Probe	E2487C - probe interface
Probe Adapter	E2492B - SC 242 probe adapter E2492C - SC 330 probe adapter E2492E - 370 pin PGA probe adapter
Processor Package	single edge connector (SEC) cartridge
Logic Analysis Pods Required	12 (compatible with 3-card 16555A/E, 16556A/E, or 16557D logic analysis modules for the 16700A & 16702A logic analysis systems)
Analysis Probe	state/clock — expanded mode state/clock — compacted mode
Clocking Mode	logic analyzer stores bus state on each qualified BCLK

Signal Line Loading



Related Literature

HP 16600A and 16700A Series Logic Analysis System	5966-3107E
HP E2467A Intel APIC Bus Analysis Probe Interface	5965-3000E
Emulation & Analysis Solutions for Intel Pentium II Processors with MMX Technology	5966-3880E
Hewlett-Packard and American Arrium Deliver a Highly Integrated Debug Environment	5968-1661E

Analysis Probe Cable Length	approximately 1 meter
Clock Frequency	133 MHz ^{1, 2} maximum for external BCLK
Target Signal	800 mV p-p minimum amplitude for all GTL+ signals
Power Requirements	internal power supply is included with analysis probe
Environmental Temperature: Operating	20° to 30° C (+68° to +86° F)
Nonoperating	- 40° to 70° C (- 40° to +158° F)
Altitude: Operating	4,600 m (15,000 ft)
Nonoperating	15,300 m (50,000 ft)
Humidity	up to 90% noncondensing (avoid sudden, extreme temperature changes that could cause condensation within the instrument)

1) E2492E 66 MHz maximum for external BCLK.
2) Spread Spectrum Clock (SSC) must be disabled.

Warranty Information

Agilent Technologies hardware products are warranted against defects in materials and workmanship for a period of one year from date of shipment. Some newly manufactured Agilent Technologies products may contain remanufactured parts, which are equivalent to new in performance. If you send notice of defects during the warranty period, Agilent Technologies will either repair or replace hardware products that prove defective.

Ordering Information

www.agilent.com

Analysis Probe (required):

E2487C Analysis Probe for the Intel Celeron, Pentium II, III, and Pentium II, III, Xeon Processor

(Note: Inverse Assembly requires run-control. See below.)

and

E2492B SC 242 Probe Adapter

or

E2492C SC 330 Probe Adapter

or

E2492E 370 Pin PGA Probe Adapter

Mainframes (required):

16700A or 16702A Logic Analysis System Mainframe

B4600B (optional) System Performance Analysis

Logic Analysis Modules (required):

16557D (required for 133 MHz) operation (3 cards required)

2-MSa, 135-MHz state/500-MHz timing

or

16555A/D (3 cards required) 1 MSa/2 MSa,

110-MHz state/500-MHz timing logic analyzer module

or

16556A/D (3 cards required) 1 MSa/2 MSa,

100-MHz state/400-MHz timing logic analyzer module

Emulation Probe or Module

(Recommended. A run-control unit is required for inverse assembly.)

- E5900A Option 510 Emulation Module

- E5901A Option 510 Emulation Probe

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Technical data is subject to change

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