The HP E2492S preprocessor with its transaction tracker and inverse assembler, allows you to easily trace the operation of a Pentium II processor multiprocessing 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, may also be displayed. The utility and usability of the HP E2492S can greatly reduce your time to insight into critical Pentium II processor based system problems. The HP E2492S utilizes the power of the HP 16505A prototype analyzer, in conjunction with the HP 16500B/C logic analysis system.

Displaying Transactions

The HP E2492S 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 HP E2492S preprocessor’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 Pentium II processor bus by coloring those transactions that give you the best view of the problem. Included with the HP E2492S 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 box lets you use color to emphasize either transaction type or agent ID.
**Viewing Instructions**

The HP E2492S 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. Branch trace messages are special bus cycles issued by the CPU (when enabled) that indicate the "from" and "to" addresses of a branch. Using BTMs, the HP E2492S inverse assembler displays a listing of only the instructions executed by the processor(s). For inverse assembly, a run-control probe, such as the HP E3493B, is necessary to enable branch trace messages and disable caches.

**Identifying Processors**

The HP E2492S 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 HP 16505A prototype analyzer display, the color of the trace changes when another processor takes an execution branch. Priority agent (I/O) activity is also displayed in color.

![Inverse Assembly Listing](image)
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.
Specifications

Preprocessor
Support Components
Processor
Package
Logic Analysis
Pods Required
Preprocessor
Clocking Mode
Preprocessor
Cable Length
Clock
Frequency
Target Signal
Amplitude
Power Requirements

Environmental
Temperature:
Operating
Nonoperating
Altitude:
Operating
Nonoperating
Humidity

FIGURE 3. Signal Line Loading
Figure 4. Slot 1 keep-out dimensions

Figure 5. Slot 2 keep-out dimensions
Ordering Information

HP E2492S
Preprocessor for the Intel Pentium II processor requires
• HP 16505A
• HP E3493B run-control or equivalent
• HP 16500B/C mainframe with any set of the logic analysis card configurations listed below

Logic Analysis Cards

HP 16555A/D
(3 cards required)
1M/2M-Sample, 110-MHz state/500-MHz timing logic analyzer module

HP 16556A/D
(3 cards required)
1M/2M-Sample, 100 MHz state/400-MHz timing logic analyzer module

HP 16550A
(2 cards required)
4K-Sample, 100-MHz state/500-MHz timing logic analyzer module

HP 16500B/C
(required)
Logic Analysis System Mainframe

HP 16505A
(required)
Prototype Analysis System

HP B4600A
(optional)
System Performance Analysis

HP E3493B
(Recommended. A run-control unit is required for inverse assembly.) Processor Probe

Warranty Information

This Hewlett-Packard product has a warranty against defects in material and workmanship for a period of one year from date of shipment. During this warranty period, Hewlett-Packard Company will, at its option, either repair or replace products that prove to be defective.

Related HP Literature

HP 16500C Logic Analysis System and HP 16505A Prototype Analyzer, Pub. Number: 5965-3187E
HP E2467A Intel APIC Bus Preprocessor Interface, Pub. Number: 5965-3000E
HP E3493B Pentium® Pro/Pentium II Processor Probe, Pub. Number: 5965-6036E