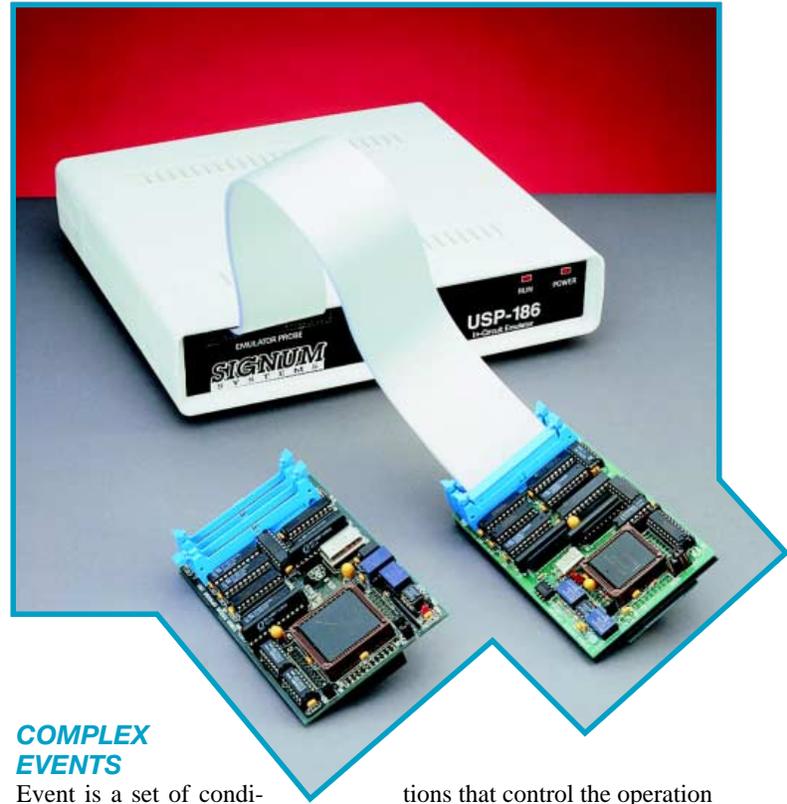


In-Circuit Emulator for 80186 μ p Family



USP-186 MAIN FEATURES

- ⇒ Memory display/edit while executing in real-time
- ⇒ Trace display during execution
- ⇒ Real-time transparent emulation up to 26-MHz
- ⇒ Supports all versions of 80C186/80C188 family
- ⇒ 3V and 5V target support
- ⇒ Transparent emulation—no resources taken away from the '186
- ⇒ HLL debug for Microsoft, Borland, and Intel C/C++ compilers
- ⇒ 32K frames (80-bits wide) of execution Trace Buffer, with time stamp
- ⇒ In-line symbolic assembler and disassembler
- ⇒ Up to 1 Mbyte of overlay memory
- ⇒ Real-time hardware breakpoints may be used with RAM or EPROM
- ⇒ Complex Events to trigger Breakpoints or Trace logic
- ⇒ Two 16-bit Pass Counters
- ⇒ 8 level hardware break Sequencer
- ⇒ 8 channel user logic state analyzer
- ⇒ External trigger input and outputs
- ⇒ Windows and DOS user interface
- ⇒ Standard serial interface to any IBM PC (no plug-in cards)
- ⇒ 15K Baud serial download (64K program download in 14 sec.)
- ⇒ Coverage Analysis to show all locations executed, read or written
- ⇒ Made and supported in U.S.A.

CHAMELEON DEBUGGER

Chameleon Debugger works on Windows 95/98/NT and includes the latest debugging features like:

- ⇒ Multi CPU support on the same screen
- ⇒ Multiple windows for source, memory, registers, etc.
- ⇒ User defined watch and SFR windows
- ⇒ Fly-over variable pop-ups in source window
- ⇒ Drag and drop variables and addresses
- ⇒ C, C++ and ASM level debugging with trace synchronization
- ⇒ Macros for automatic testing and verification

DUAL-PORTED MEMORY

Using dual-ported memory allows instant viewing and modification of emulation memory without stopping or slowing down the running target.

BREAKPOINTS

Breakpoints are used to stop user program execution preserving the current program status. Breakpoints can be triggered from a combination of:

- | | |
|-------------------------------|-----------------------------|
| Address or Range of Addresses | Complex Events |
| External Input | Pass Counters |
| Sequencer | Trace Buffer Full Condition |

COMPLEX EVENTS

Event is a set of conditions that control the operation of complex program breakpoints and trace start/stop logic in real time. There are 3 Events available, each consisting of the combination of the following:

- ⇒ 1 MByte address breakpoints or ranges
- ⇒ 16-bit data pattern with less than, greater than, equal, not equal, and don't care combinations
- ⇒ Memory R/W, I/O R/W, Interrupt, and instruction read as cycle qualifiers
- ⇒ External input with programmable trigger polarity

In addition, Events can be counted or delayed by the use of two 16-bit Pass Counters. An eight level hardware sequencer is available to sequentially trigger from/to any Event or Pass Counter.

TRACE BUFFER

Trace buffer is a high speed RAM used to capture in real-time all activity on the microprocessor internal bus and pins. A dedicated start/stop logic allows for filtering unwanted information from the trace buffer. Buffer will remember the selected 32K samples (frames) comprised of the following:

- | | |
|-----------------------|----------------------------|
| Address Bus | Data Bus |
| Control Signals | I/O Pins |
| Real-Time Clock Stamp | User Logic Inputs (8 bits) |

Trace can be started/stopped by the combination of:

- | | |
|----------------------|----------------|
| GO Command | Complex Events |
| Pass Counters | Sequencer |
| Trace Full Condition | |

Additionally Trace Buffer is equipped with a special internal counter to allow tracing to stop after a specified number of frames. This feature allows Trace to catch as much as 32K of small fragments (snapshots) of executed program at full running speed. The trace contents can be examined during program execution without slowing down the microcontroller.

SIGNUM
SYSTEMS

For More Information, Please Call:
1-800-838-8012
or visit our website at:
www.signum.com

In-Circuit Emulator for 80186 μ P Family

| | |
|--------------------------------|--|
| Microcontrollers emulated: | |
| POD186 | 80C186, 80C188 |
| POD186EA | 80C186EA, 80C188EA |
| POD186EB | 80C186EB, 80C188EB |
| POD186EC | 80C186EC, 80C188EC |
| POD186XL | 80C186XL, 80C188XL, 80L186XL, 80L188XL |
| Maximum emulation speed | Up to 20 MHz - standard, 26 MHz - optional |
| Size | 260 mm wide, 260 mm deep, 64 mm high |
| Emulation Program Memory | 1 MB |
| Number of Hardware Breakpoints | Unlimited |
| Program Memory mapping | 256 byte boundary |
| Write Protect mapping | 256 byte boundary |
| Pass Counters | two, 16-bit each |
| Trace buffer | 32 Kframes * 80 bits with filtering |
| Real-Time Stamp | 40-bits, 100 ns resolution with Absolute, Relative and Delta modes |
| Sequencer | hardware, 8 levels |
| User probe | 8 channel logic input 1 trigger input with gate 6 trigger outputs (Events, Pass Counters, Sequencer) |
| Host interface | Serial (COM1-COM4) or Parallel (LPT1-LPT2) |
| Language support | C and C++ from Microsoft, Borland, Intel and Paradigm |

SAMPLE SCREEN FOR THE USP-186

The screenshot displays the Signum ICS-186 software interface. It features several key windows:

- Source Window:** Shows the source code for a test program named 'pstru2.c'.
- Setup Window:** Contains hardware configuration options such as 'CPU go', 'Fetch', 'Read', 'Write', 'I/O Read', 'I/O Write', and 'Int ack'.
- Mapper Window:** Displays a memory map with columns for Address, Data, and Resolution, showing various memory ranges and their resolutions.
- Command Window:** Provides a command-line interface for CPU control, including commands like 'GO <adr>', 'UNTIL [cbreak]', and 'TILL [cbreak]'. It also includes options for 'RESET', 'STEP', and 'SS'.
- Load Window:** Used for loading the target program, showing file type and name.
- Status Window:** Displays the current status of the emulator, including registers (AX, BX, CX, DX, SI, DI, BP, SP) and flags (OF, DF, Ac, EI, S, Z, Ac, P, C).
- Memory Window:** Shows the contents of memory at a specific address, with columns for Address and Data.



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