Z86L99 ZEM

Z8 In-Circuit Emulator

Product Specification

PS006201-IRR0500

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Z86L99ZEM Z8 In-Circuit Emulator

Features

Package	Emulation	OTP	Required accessories
28 PDIP	Z86L991PZ008SC	Z86D991 PZ008SC	28 PDIP emulation pod 28 PDIP OTP Adapter
28 SOIC	Z86L991SZ008SC	Z86D991 SZ008SC	28 PDIP emulation pod and a DIP to SOIC conversion adapter (AS-DIP 6-028-S003-1 or AS-DIP-6-028-S003-2) from Emulation Technology (not included with kit) 28 SOIC OTP Adapter
40 PDIP	Z86L990PZ008SC	Z86D990 PZ008SC	40 PDIP emulation pod 40 PDIP OTP Adapter
48 SSOP		Z86D990 HZ008SC	48 SSOP OTP adapter

- Supports up to 32K of ROM

- Varies the operating voltage from 3.0-4.0V

- Supports in-circuit emulation on target systems that operate at 3.0-4.0V

- Powers the In-Circuit Emulator (ICE) chip from either the emulator or target board

- Supports IR devices that operate at up to 8 MHz

- Emulates 28-pin DIP and 40-pin DIP

- Provides OTP programming for 28-pin DIP and SOIC packages, 40-pin PDIP, 48-pin SSOP

- Multi-tasks with other Windows® applications while ZiLOG Developer Studio (ZDS) is running

General Description

ZiLOG's in-circuit emulators are interactive, Windows-oriented development tools, providing a real-time environment for emulation and debugging.

The Z86L99 emulator (Z86L990100ZEM) is a member of ZiLOG's ICEBOX™ product family of in-circuit emulators. The emulator provides essential timing and I/O circuitry to simplify user emulation of prototype hardware and software products.

The Z86L99 emulator provides users with a hardware platform to develop and debug software in a real-time environment. In contrast, software simulators are significantly slower making them less practical for code development.

The Z86L99 emulator can be connected to any serial port (COM1, COM2, COM3, and COM4) on the host computer. ZiLOG Developer Studio (ZDS) software initiates the interaction between the host computer and the emulator.

Notes/Limitations

P43 has a fixed current out. A lengthy cable introduces inductance and can cause voltage spikes. A long cable can also affect the Analog to Digital Converter (ADC) accuracy.

In the OTP version, P52 and P53 are EPROM high voltage pins. This means that these pins do not have pull-up resistance like mask MCU pins.

▶ **Note:** The mask option pull-up resistance at 3V is approximately 200 KΩ ± 50% at room temperature. Lower voltage can cause increased resistance.

All registers are read/write (R/W) except

ADCDATA	read only
IPR	write only
P2M	write only
P3M	write only

Specifications

Operating Conditions	
Operating Temperature	20ºC ±10ºC
Supply Voltage	+5.0 VDC
Minimum Emulation Speed	1 MHz internal SCLK
Maximum Emulation Speed	8 MHz internal SCLK
	8 MHz external clock (shipped with 8-MHz clock oscillator)
Maximum Emulation Memory	32 K
Maximum Hardware Breakpoints	256
Emulation Processor	Z86D99
Operating Humidity	10%–90% RH (noncondensing)
Power Requirements	+5.0 VDC @ 1.5A Minimum (typical 800 mA)
Dimensions	
Width:	6.25 in. (15.8 cm)
Length:	9.50 in. (24.1 cm)
Height:	2.50 in. (6.35 cm)
Serial Interface	RS-232C@9600, 19200 (default), 28800 or 57600 Baud

Emulator Kit Contents

The emulator kit contains one of each of the following items:

- Z86L99 Emulator board
- Z86D991 28-pin PDIP program adapter
- Z86D991 28-pin SOIC program adapter
- Z86D990 40-pin PDIP program adapter
- Z86D990 48-pin SSOP program adapter
- 28-pin PDIP emulation pod ZiLOG
- 40-pin PDIP emulation pod with cable
- Power Cable with banana plugs
- RS-232 Serial cable, 9-pin male and 25-pin female
- ZiLOG Developer Studio Installation CD
- *Z86L99 Emulator User's Manual*
- *ZiLOG Developer Studio Manual* contained on the ZDS installation CD-ROM

> **Note:** If the ZDS CD-ROM does not contain the manual it can be downloaded from the ZiLOG website at www.zilog.com.

Additional Items Required

The following item is required but is not currently supplied in the emulator kit:

- Power source (+5VDC typical) for the emulator. This can be a laboratory power supply with a current rating of at least 1.5 amperes.

Optional Recommended Items

The following items are recommended:

- Target design, this is usually a wire-wrapped or printed circuit prototype that includes a socket for the target device which the emulator cable/pod plugs into.
- C-Compiler
  Until ZDS's C-Compiler is completed, use Production Languages Corp. (PLC) 3xx IDE tool to compile programs in C. Contact ZiLOG customer support for more information on the ZDS C-Compiler.
- Oscilloscope
- Logic Analyzer

Minimum Requirements of Host Computer

- IBM PC (or 100 percent compatible) Pentium-based machine
- 75 MHz CPU
- 16 MB RAM
- VGA video adapter
- Hard disk drive (12 MB free space)
- CD-ROM Drive
- RS-232C COM port
- Mouse or pointing device
- Microsoft Windows® 95/98/NT

The following changes to the minimum requirements are recommended for increased performance:

- 166 MHz or faster processor
- SVGA Video Adapter