Z8932302ZEM

DSP FAMILY
EMULATOR– Z89323

FEATURES

■ Supported Devices:

Packages	Emulation	OTP Programming
44-Pin PLCC	Z89223/273[1]	Z89273[1]
44-Pin QFP	N/A	N/A
68-Pin PLCC	Z89323/373	Z89373
80-Pin QFP	N/A	Z89373

Notes:
1. Requires optional, separately purchased accessory kit, Z8922300ZAC, from Zilog.

■ ICEBOX Emulator Provides Source-Level Debugging for DSP Codes.

■ HP Logic Analyzer Interface

■ 64K of External Data Memory

■ Symbolic Disassembly in the Debug Window

■ Selectable Baud Rates – 9600 to 57.6 Kbps

■ Windows-Based User Interface

■ RS-232C Connector

■ Zilog Macro Cross Assembler (ZMASM)
    – Structured Assembly and Data Code
    – Source-Level Debug Support
    – Built-In Register Equates
    – Linker

GENERAL DESCRIPTION

Zilog's in-circuit emulators are interactive, Windows-oriented development tools providing a real-time environment for developing and debugging software. Also included is a full-featured macro cross assembler to enhance programmer productivity when used in conjunction with the Z89323 Emulator.

The Z89323 Emulator provides a hardware platform that is a significant improvement compared to software simulators. The emulator is faster in operation, making it more practical than software simulators for code development.

The Z89323 Emulator, which supports the Z89323 family of DSP processors listed above, provides essential timing and I/O circuitry to simplify user emulation of the prototype hardware and software product.

The Z89323 Emulator can be connected to a serial port (COM1, COM2, COM3, or COM4) of the host computer, and it uses Graphical User Interface (GUI) software.

SPECIFICATIONS

Operating Conditions

Operating Temperature: 20°C ±10°C

Supply Voltage: +5 VDC ±5% or 9VDC @
1.2A wall adaptor

Operating Humidity: 10-90% RH (non-condensing)

Minimum Emulation Speed: 1 MHz

Maximum Emulation Speed: 20 MHz

Power Requirements

The emulator board has dual-power capability: 9VDC or 5.0VDC. If optional OTP programming is enabled and the 5.0VDC terminal is used, a 6.0VDC ±5% @ 500 mA (typical) power source is also required.

Dimensions

Width: 8.00 in.

Length: 9.75 in.

Height: 0.50 in.

Serial Interface

RS-232C @ 9600, 19200 (default), 28800, or 57600 Baud Rates

Emulation Memory

DSP = 64K words (maximum)

Number of Breakpoints

DSP = 256 (maximum)

HOST COMPUTER

Minimum Requirements

IBM PC (or 100-percent compatible) 386-based machine:

- 33 MHz
- 4 MB RAM
- VGA Video Adapter
- Hard Disk Drive (3.0 MB free space)
- 3.5-inch, High-Density (HD) Floppy Disk Drive
- RS-232C COM Port
- Mouse or Pointing Device
- Microsoft Windows 3.1(Use with DSPICE software)

The following changes to the Minimum Requirements are recommended for increased performance:

- 486- or Pentium-based machine
- 66 MHz (or faster)
- 8 MB of RAM (or more)
- SVGA Video Adapter
- Color Monitor
- Printer
- Microsoft Windows 95

KIT CONTENTS

Qty.   Item

1   Z89323 Emulator Board

Cables/Pods

1   RS-232C Serial Cable, 9-Pin M-F

1   9VDC AC Adaptor

1   Emulation Pod, 68PLCC

1   Power Cable Assembly, 4-Leads

1   Programming Adapter, 68-PLCC/80-QFP

Host Software

DSP GUI Diskette

ZMASM (w/ ZDS) Diskette

Documentation

Emulator User's Manual

Zilog Macro Cross Assembler User's Manual

Software License and Limited Warranty Agreement

Registration Card (2)

ADDITIONAL REQUIRED ITEMS NOT SUPPLIED

■ Your Target Design

Typically, this is a wire-wrapped or printed-circuit prototype that includes a 68PLCC socket that you can connect the emulator's pod.

■ Zilog's HP Logic Analyzer Interface Board

LIMITATIONS

1. Switching emulators without quitting the GUI is not supported and may cause unexpected results.

2. The emulator breakpoint hardware does not distinguish between instruction and data fetches. Consequently, the breakpoint hardware triggers when the address specified matches either an instruction or data fetch.

   Example:

0000	LD	A, #%0006
0002	ADD	A, #%0002
0003	LD	Y, @A
0004	NOP	
0005	NOP	
0006	JP	%0000
0008	NOP	

   Setting the breakpoint at %0008 and click GO causes the code to break at %0004 due to the data fetch address match during the prior instruction. This does not occur when Animate Mode is on because the GUI is not using the hardware breakpoints when in Animate Mode.

3. "ROM PROTECT" option programming is temporarily disabled.

4. The maximum loadable symbols is 32,768 provided there is enough system resource (memory).

5. Although GUI , 3.00 and later support baud rates up to 57.6K baud, the actual maximum usable rate may be less due to limitations of the users hardware and or system software setup. The maximum usable rate is determined by the users tolerance of the frequency of communication errors.

6. The GUI does not recognize the PUSH and POP instructions when entered in the In-Line Assembler (Debug window). As a workaround, use "LD STACK,xxx" for PUSH and "LD xxx,STACK" for POP.

7. Please consult the "P_AND_L.TXT" and "OTPPROG.TXT files for latest updates.

PRECAUTIONS

1. The emulator cannot be operated while performing ESD/EMI testing on the target board.

2. For 386 PCs, set the baud rate to 19.2K or less because Windows' communication driver does not guarantee "reliable" operation at more than 9600 baud. Selecting a high baud rate on some slower 386 machines may crash the Windows environment.

3. Breakpoint overshoot. The Debug window shows the processor halting at one or two instructions past the instruction where the breakpoint was set.

4. Do not start the emulator with OTP in socket.

5. Executing GUI. The GUI will occasionally continue to indicate "Executing" after a Halt instruction. Pushing the GO button will then result in Executing. (Executing showing at the top of the screen.)

6. When the DSP Register window is open, the DSP EXT Data Address (EXT1) is getting incremented when Register window is updated. This is also true when encountering a breakpoint and/or single-stepping.

7. Please consult the "P_AND_L.TXT" and "OTPPROG.TXT files for latest updates.