Z8700000ZEM

ICEBOX™ FAMILY IN-CIRCUIT EMULATOR

HARDWARE FEATURES

- Supported Devices

Package	Emulation	Programming
84-Pin PLCC	Z87000	N/A

- Real-Time Emulation
- ICEBOX Emulator Provides In-Circuit Program Debug Emulation
- DSP GUI Emulator Software
- Windows-Based User Interface
- RS-232 Connector
- ICE Pod Connector for Emulation

GENERAL DESCRIPTION

The Z8700000ZEM is a member of Zilog's ICEBOX product family of in-circuit emulators providing support for the above listed DSP microcontroller devices.

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

The emulator provides essential timing and I/O circuitry to simplify user emulation of the prototype hardware and software product.

Data entering and program debugging are performed by the monitor ROM and the host package, which communicates through RS-232C serial interface. The user program can be downloaded directly from the host computer through the RS-232C connector. User code may be executed through debugging commands in the monitor.

The Z8700000ZEM emulator can be connected to a serial port (COM1, COM2, COM3, and COM4) of the host computer and uses Graphical User Interface (GUI) software.

SPECIFICATIONS

Operating Conditions

Operating Temperature: 20°C, ±10°C
Supply Voltage: +5.0 VDC, ± 5%
Maximum Emulation Speed: 16.384 MHz

Power Requirements

+5.0 VDC @ 0.5A

Dimensions

Width: 6.25 in. (15.8 cm)
Length: 9.5 in. (24.1 cm)
Height: 2.5 in. (6.35 cm)

Serial Interface

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

HOST COMPUTER

Minimum Requirements

IBM PC (or 100-percent compatible) 386-based machine
33 MHz
4 MB RAM
VGA Video Adapter
Hard Disk Drive (1 MB free space)
3.5-inch, High-Density (HD) Floppy Disk Drive
RS-232C COM port
Mouse or Pointing Device
Microsoft Windows 3.1

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

KIT CONTENTS

Z87000 Emulator

•Emulation Base Board includes:
CMOS Z86C9320PSC
8K x 8 EPROM (Programmed with Debug Monitor)
32K x 8 Static RAM
RS-232C Interface
Reset Switch

•Z87000 Emulation Daughterboard
16 MHz CMOS Z86C1216GSE ICE Chip
64K x 4 Static RAM
Two 32K x 4 Static RAM for Breakpoints
Two 80-Pin Target Connectors
100-Pin HP Logic Analyzer Interface Board Connector

Cables/Pods

Power Cable with Banana Plugs
DB25 RS-232C Cable
84-Pin PLCC Emulation Pod Cable
Mini-Coax with SMA Connectors

Host Software

DSP GUI Emulator Software

Note: Cross-Assembler and C Compiler are sold separately from Zilog or Production Languages, Tel.: (817) 599-8363

Documentation

Emulator User's Manual
Registration Card
Product Information

LIMITATIONS

1. Changing drives in file download and load symbol dialog boxes is not anticipated by the GUI. Typing in the filename in a directory other than shown in “Path:” will result in “File not found”. Changing the drive using the mouse is the workaround.

2. The GUI does not recognize the PUSH and POP instructions when entered from In-Line Assembler. Use "LD STACK, xxx" for PUSH and "LD xxx, STACK" for POP instead.

3. The initial blue Zilog screen will be distorted by other active windows. This only affects the appearance, not functionality, of the GUI.

4. Switching ICEBOXes without quitting the GUI is not supported.

5. The maximum symbols that can be loaded is 32768, provided that there is enough system resource (memory).

6. Download File Name is not shown except at Time of Download. The emulator only shows the name of the file during the download process. To check the name of the file currently downloaded, select "File" and then "Download DSP Memory." The File Name box in the "Down to DSP Code Memory" window will reflect the file that is selected for download. Unlike other emulators, the Debug window or Memory window does not show the name of the currently downloaded file.

LIMITATIONS (Continued)

7. The ICEBOX breakpoint hardware does not distinguish between instruction and data fetches. When a breakpoint in the GUI is set, the breakpoint hardware triggers when the addresses match for either code or data fetches.

   Example:

```
000C    SRP    #%0
000E    LD     R4, #%0016
0010    LD     R5, @R4
0012    NOP
0013    JP     %000C
0016    NOP
```

   Setting the breakpoint at %0016 and click GO.

   Result: The code will break and stop at %0012.

   Note: This will not happen when Animate Mode is on because the GUI is not using the hardware breakpoints when in Animate Mode.

PRECAUTION LIST

1. Breakpoint Overshoot. The Disassembly window shows the processor halting at one or two instructions past the instruction where the breakpoint was set.

2. Executing GUI. The GUI will occasionally continue to indicate executing after it has been told to halt. Pushing the GO button will then result in executing. (Executing showing at the top of the screen).

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

4. GUI software versions prior to 3.00 are incompatible with hardware containing BOOTROM 3.00. The GUI software may still boot, but will fail at some later point of the session.

5. The status color bar in OTP dialog box will be cleared in the area where a new window opens on top of it.

6. The PLC Z89C00 Assembler RESET symbol in symbol table is fixed at 1000 when the assembly code contains “VECTOR RESET =” statement.

7. For 386 PCs, set the baud rate to 19.2K or less because the 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.

© 1995 by Zilog, Inc. All rights reserved. No part of this document may be copied or reproduced in any form or by any means without the prior written consent of Zilog, Inc. The information in this document is subject to change without notice. Devices sold by Zilog, Inc. are covered by warranty and patent indemnification provisions appearing in Zilog, Inc. Terms and Conditions of Sale only. Zilog, Inc. makes no warranty, express, statutory, implied or by description, regarding the information set forth herein or regarding the freedom of the described devices from intellectual property infringement. Zilog, Inc. makes no warranty of merchantability or fitness for any purpose. Zilog, Inc. shall not be responsible for any errors that may appear in this document. Zilog, Inc. makes no commitment to update or keep current the information contained in this document.

Zilog’s products are not authorized for use as critical components in life support devices or systems unless a specific written agreement pertaining to such intended use is executed between the customer and Zilog prior to use. Life support devices or systems are those which are intended for surgical implantation into the body, or which sustains life whose failure to perform, when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.

Zilog, Inc. 210 East Hacienda Ave.
Campbell, CA 95008-6600
Telephone (408) 370-8000
Telex 910-338-7621
FAX 408 370-8056
Internet: http://www.zilog.com