



Totally Logical

Z87L0200ZEM

Z-PHONE EMULATOR

FEATURES

Supported Devices

Packages	Emulation	OTP Programming
100-pin VQFP	Z87L0216ASCR ¹	None
100-pin PQFP	Z87L0216FSCR ²	None
144-pin VQFP	Z87L0316ASCR ³	None

Notes:

1. Requires separately-purchased emulator pod EPP-100-QF49-W.
2. Requires separately-purchased emulator pod EPP-100-QF63-W.
3. Requires separately-purchased emulator pod EPP-100-QF06-W.

- Source-Level Debugging for DSP Codes
- Symbolic Disassembly in the Debug Window
- Selectable Baud Rates—9600 to 57.6 Kbps
- Windows-Based User Interface
- RS-232 Connector
- ZiLOG Developer Studio (ZDS), with ZiLOG Macro Cross Assembler
 - Project Front End Interface (graphical-based)
 - Structured Assembly Code (resembles “C” language code)
 - Listing, Map, and Linker Control Files
 - ZDS Syntax-Highlighting Editor (Windows 95 Only)
 - ZDS Faster Error Correction (Windows 95 Only)

GENERAL DESCRIPTION

ZiLOG’s in-circuit emulators are interactive, Windows-oriented development tools that provide a real-time environment for developing and debugging software. Included with each of ZiLOG’s emulators is a powerful, full-featured macro cross assembler. When used in conjunction with the Z87L02 Emulator, this tool is designed to enhance programmer productivity. For C-language software development, ZiLOG recommends the PLC “C” Compiler from PLC Technology (an evaluation copy is included).

The Emulator provides a hardware platform that is a significant improvement compared to software simulators. The

Emulator is faster in operation than simulators, making it more practical for code development.

The Z87L02 Emulator, which supports the Z87L02 and Z87L03 family of spread-spectrum phone controllers listed above, provides essential timing and I/O circuitry to simplify user emulation of the prototype hardware and software product.

The Z87L02 Emulator can be connected to the serial port (COM1, COM2, COM3, or COM4) of the host computer.

Included with every emulator is ZiLOG’s Graphical User Interface (GUI) software.

SPECIFICATIONS

Operating Conditions	
Operating Temperature:	20°C, ±10°C
Supply Voltage:	4.75 VDC to 5.25 VDC Max @ 1.2A (+5.0 VDC typical)
Operating Humidity:	10%–90% RH (noncondensing)
Emulation Speed:	16.384 MHz
Power Requirements	@ 0.8A typical, 1.2A maximum
Dimensions	
Width:	6.25 in. (15.875 cm)
Length:	9.5 in. (24.125 cm)
Height:	2.5 in. (6.35 cm)
Serial Interface	RS-232 @ 9600, 19200 (default), 28800, or 57600 Baud
Emulation Memory	64 K words (maximum)
Number of Breakpoints	256 (maximum)

HOST COMPUTER

Minimum Requirements

IBM PC (or 100-percent compatible) Pentium-based machine

- 75 MHz
- 16 MB RAM
- VGA Video Adapter
- CD-ROM Drive
- RS-232 COM Port
- Mouse or Pointing Device
- Microsoft Windows 95
- Printer (optional)
- Hard Disk Drive (14 MB of free space)

Recommended

ZiLOG recommends the following additions to the Minimum Requirements:

- Pentium-Based Machine
- 166 MHz (or faster)
- 16 MB of RAM (or more)
- SVGA Video Adapter
- Microsoft Windows 95/98/NT

KIT CONTENTS

Quantity	Item	Pin Package	Serial Number
1	Z87L02 ICEBOX		
Cables/Pods			
1	Z87L02 pod	100-pin VQFP	PC: 99C0608-001
1	Z87L02 pod	100-pin PQFP	PC: 99C0627-001
1	Z87L03 pod	144-pin VQFP	PC: 99C0609-001
2	Cable Assembly, 100-count, 12-inch		
1	Cable Assembly, 34-count		
1	Cable Assembly, Power, Pigtail, 2-count		
1	Cable Assembly, RS-232, DB-25		
Host Software			
1	ZDS CD-ROM		
1	PLC C/3XX Evaluation Software—CD-ROM		
1	Z87L02 Application Notes—3.5" diskette		
Documentation			
1	Z87L0200ZEM Emulator User's Manual		
Required Items Not Supplied			
1	Power Supply (ELPAC Product Specification available from ZiLOG)		
3	Target Pods (available from Emulation Technology)		
	EPP-100-QF49-W (Z87L02) 100VQFP		
	EPP-144-QF63-W (Z87L03) 144VQFP		
	EPP-100-QF06-W (Z87L02) 100PQFP		

REFERENCES

PLC Technology
 Telephone: (817) 367-3699
 Fax: (817) 367-6062
 Website: www.plcorp.com

Emulation Technology
 Telephone: 1 (800) 232-7837
 Fax: (408) 982-0664
 Website: www.emulation.com

PRECAUTIONS

1. GUI software versions prior to 3.00 are incompatible with hardware containing BOOTROM 3.00. The GUI software may still boot; however, the program may fail at any time during its execution.
2. When simultaneously running two different GUI versions on two different Communication Ports, the former executed version is used for both emulators. These are typical Windows OS bugs.
3. The emulator cannot be operated while performing ESD/EMI testing on the target board.
4. The GUI occasionally indicates Executing after a HALT instruction. Pushing the GO button also indicates Executing (Executing displays in the caption bar of the DEBUG window). This condition is applicable to DSPICE GUI software only.
5. Ensure that the target cable is correctly aligned (pin-1 to pin-1) before inserting into the target system. Incorrect alignment may damage the emulator and/or the target system.
6. The Edit|Fill|Memory Decimal radix option will not accept entry of more than 9,999 for the Fill Value. Please use the hexadecimal radix option when using a fill value of more than 9,999 decimal.

LIMITATIONS

1. Switching ICEBOX emulators without quitting the GUI is not supported and causes unexpected results.
2. The maximum loadable symbols is 32,768 (provided there is enough system memory).
3. Although version 3.00 or higher of the GUI may 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.
4. 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.
5. The emulator breakpoint hardware cannot 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 a breakpoint at %0008 and clicking GO causes the code to break at %0004 due to the data fetch address match during the prior instruction. This anomaly does not occur during ANIMATE mode because ANIMATE mode does not use hardware breakpoints.

6. The STEP OVER button sets a temporary breakpoint on the next instruction and starts execution of the current instruction. If control does not return to the temporary breakpoint in a fixed amount of time a ZILOG ICEBOX TARGET PROGRAM EXECUTION ERROR message occurs. As a workaround, the user should simply set a regular breakpoint on the next instruction, and click on the GO button (perform this action in place of using the STEP OVER function).

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