



**Z8F08200100KIT**

**Z8 Encore!® 8K/4K MCU  
Development Kit**

**User Manual**

UM015005-1206



This publication is subject to replacement by a later edition. To determine whether a later edition exists, or to request copies of publications, contact:

**ZiLOG Worldwide Headquarters**

532 Race Street  
San Jose, CA 95126  
Telephone: 408.558.8500  
Fax: 408.558.8300  
[www.zilog.com](http://www.zilog.com)

**Document Disclaimer**

ZiLOG is a registered trademark of ZiLOG Inc. in the United States and in other countries. All other products and/or service names mentioned herein may be trademarks of the companies with which they are associated.

©2006 by ZiLOG, Inc. All rights reserved. Information in this publication concerning the devices, applications, or technology described is intended to suggest possible uses and may be superseded. ZiLOG, INC. DOES NOT ASSUME LIABILITY FOR OR PROVIDE A REPRESENTATION OF ACCURACY OF THE INFORMATION, DEVICES, OR TECHNOLOGY DESCRIBED IN THIS DOCUMENT. ZiLOG ALSO DOES NOT ASSUME LIABILITY FOR INTELLECTUAL PROPERTY INFRINGEMENT RELATED IN ANY MANNER TO USE OF INFORMATION, DEVICES, OR TECHNOLOGY DESCRIBED HEREIN OR OTHERWISE. Except with the express written approval of ZiLOG, use of information, devices, or technology as critical components of life support systems is not authorized. No licenses are conveyed, implicitly or otherwise, by this document under any intellectual property rights.



## Revision History

Date	Revision Level	Description	Page No
November 2006	05	Changed Figure 14 to Figure 2.	5
November 2005	04	Removed the word Preliminary from all page footers and updated trademarks.	All

## Safeguards

The following precaution must be observed when working with the devices described in this document.



**Caution:** Always use a grounding strap to prevent damage resulting from electrostatic discharge (ESD).



# Table of Contents

<b>Introduction</b> .....	<b>1</b>
Kit Contents .....	1
Hardware .....	1
Software (on CD-ROM) .....	2
Documentation .....	3
System/Software Requirements .....	3
Supported Host System Configuration .....	3
<b>Installation</b> .....	<b>4</b>
<b>Z8 Encore! 8K/4K Evaluation Board</b> .....	<b>5</b>
Features .....	6
MCU .....	6
UART with IrDA Endec .....	8
Crystal Oscillator .....	8
Power and Communication Interfaces .....	8
External Interface Headers JP1 and JP2 .....	9
<b>Schematics</b> .....	<b>10</b>

# Introduction

ZiLOG's Z8 Encore! 8K/4K MCU is a part of line of ZiLOG microcontroller products. The Z8 Encore! MCU Development Kit (Z8F08200100KIT) enables users to become familiar with the hardware and software tools available with this product. This kit consists of the 8 KB version of the Z8 Encore! evaluation board that supports and presents the features of the Z8 Encore! 8K/4K MCU. This kit allows you to begin writing application software and contains all supporting documents.

This manual acquaints you with the Z8 Encore! 8K/4K MCU Development Kit and provides instructions on setting up and using the tools to start building designs and applications.

## Kit Contents

The Z8 Encore! 8K/4K MCU Development Kit contains the following:

### Hardware

The hardware in Z8 Encore! 8K/4K MCU Development Kit include:

- Z8 Encore! 8K/4K evaluation board
- Smart Cable for PC to Z8 Encore! 8K/4K evaluation board (DB9 to six-pin male)
- 5 V DC power supply



**Figure 1. Z8 Encore! MCU Development Kit Contents**

## Software (on CD-ROM)

The software (on CD-ROM) include:

- ZDS II- Z8 Encore! IDE with ANSI C-Compiler
- Sample code
- Document browser
- Acrobat Reader

## Documentation

- Quick Start Guide
- Z8 Encore! 8K/4K technical documentation (on CD-ROM):
  - Development Kit User Manual
  - ZDS II - IDE User Manual
  - eZ8 CPU User Manual
  - Product Specification
  - Product brief
  - Application notes
  - Programmer's Reference Sheet

The sample code is installed with ZDS II and resides in the `<installation directory>\samples` in the disk drive.

The documentation can be installed with the DemoShield interface or can be viewed on the CD-ROM using the DemoShield menus and a PDF reader. A copy of the Acrobat installer is provided on the CD-ROM and can be installed from the DemoShield install screen. After installing the documentation, Windows Explorer can be used to select any document to be viewed with PDF file viewer.

## System/Software Requirements

An IBM PC (or compatible computer) with the following minimum configurations:

### Supported Host System Configuration

The host system configuration for Z8 Encore! 8K/4K MCU Development Kit include:

- Win98 Second Edition, WinNT 4.0 Service Pack 6, Win2000 Service Pack 3, WinXP Service Pack 1
- PentiumII/233 MHz processor or higher up to Pentium IV, 2.8 GHz
- 96 MB RAM or more



- 25 MB hard disk space or more
- Super VGA video adapter
- CD-ROM
- One or more RS-232 communication ports

## **Installation**

Follow the directions in the Quick Start Guide for software installation and setup of the Z8 Encore! Development Kit.



# Z8 Encore! 8K/4K Evaluation Board

The Z8 Encore! 8K/4K evaluation board is an evaluation and prototyping board for the Z8 Encore! 8K/4K MCU. The board provides you with a tool to evaluate features of Z8 Encore! 8K/4K MCU, and to start developing an application before building the hardware.

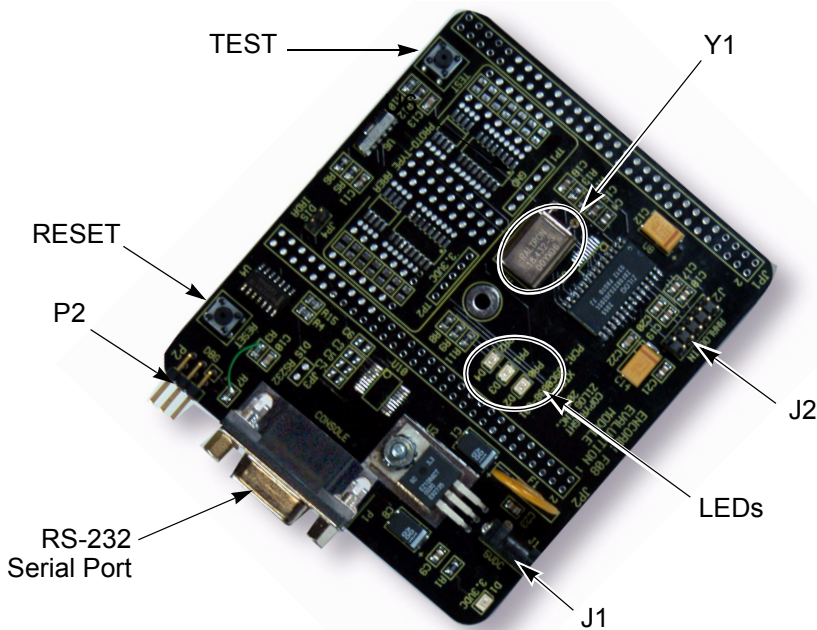


Figure 2. Z8 Encore! 8K/4K Evaluation Board

## Features

The features of Z8 Encore! 8K/4K evaluation board are:

- Z8 Encore! MCU (28-pin SOIC)
- 3 LEDs
- RS-232 interface
- IrDA transceiver
- Two pushbuttons, RESET and TEST
- 5 V DC power connector
- On-Chip Debugger interface
- Crystal Oscillator at 18.432 MHz
- Header for ADC input
- Prototyping area
- External interface connectors JP1 and JP2
- 2.7 V to 3.6 V operating voltage with 5 V-tolerant inputs

## MCU

The Z8 Encore! 8K/4K MCU is member of a family of ZiLOG microcontroller products based upon the 8-bit eZ8 core CPU. The Flash in-circuit programming capability allows for faster development time and program changes in the field. The eZ8 core CPU is upward compatible with existing Z8<sup>®</sup> instructions. The rich peripheral set of the Z8 Encore! 8K/4K makes it suitable for a variety of applications including motor control, security systems, home appliances, personal electronic devices, and sensors.

The evaluation board contains circuitry to support and present all the features of the Z8 Encore! 8K/4K.

The main features of the Z8 Encore! 8K/4K MCUs are:

- eZ8 core CPU
- 8 KB Flash memory with in-circuit programming capability
- 1 KB register RAM
- 5-channel, 10-bit analog-to-digital converter (ADC)
- Full-duplex UART
- I<sup>2</sup>C interface (Master Mode only)
- Serial Peripheral Interface (SPI)
- Infrared Data Association (IrDA)-compliant infrared encoder/decoder
- Two 16-bit timers with capture, compare, and PWM capability
- Watchdog Timer (WDT) with internal RC oscillator
- Eleven or nineteen I/O pins
- Programmable priority interrupts
- On-Chip Debugger (OCD)
- Voltage Brownout Protection (VBO)
- Power-on Reset (POR)
- 2.7 to 3.6 V operating voltage with 5 V-tolerant inputs
- Operating temperatures: 20 °C ±10 °C

For further information on the Z8 Encore! family of devices, refer to the product specification (PS0197) available for download at [www.zilog.com](http://www.zilog.com).

## UART with IrDA Endec

The Z8 Encore! 8K/4K contains a fully-functional, high-performance UART with Infrared Encoder/Decoder (ENDEC), component U6. The Infrared Endec is integrated with an on-chip UART allowing easy communication between the Z8 Encore! 8K/4K and IrDA transceivers. Infrared communication provides secure, reliable, low-cost, point-to-point communication between PCs, PDAs, cell phones, printers and other infrared enabled devices.

## Crystal Oscillator

The evaluation board ships with an 18.432 MHz Crystal Oscillator (Y1). If you want to change the change the Crystal Oscillator you are required to change the Clock Frequency in for ZDS II. The frequency settings can be found at **Project** → **Settings** → **Debugger** → **ZDB: Configure ZDB Driver: Clock Frequency**. Refer to the Z8Encore! Product Specification for supported frequencies.

## Power and Communication Interfaces

[Table 1](#) provides jumper information concerning the shunt status, functions, devices and defaults affected of jumpers JP3 and JP4.



**Table 1. Jumpers JP3 and JP4**

Jumper	Status	Device Affected	Status	Default
JP3**	OUT*	RS-232 interface	Enabled	X
JP3	IN	RS-232 interface	Disabled	
JP4	OUT*	IrDA interface	Enabled	
JP4	IN	IrDA interface	Disabled	X
Note: * These jumpers must not be OUT at the same time ** If the module is plugged onto an eZ80 Evaluation platform or eZ80 demonstration board the local RS-232 can be disabled by connecting header JP2 pin 50 to the corresponding GND on the mating connector.				

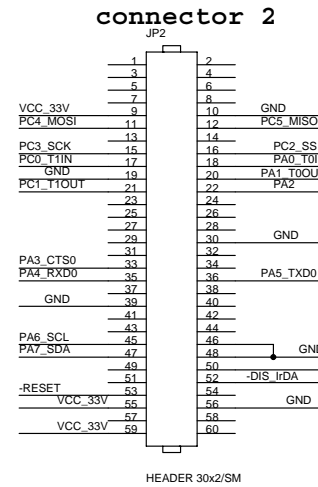
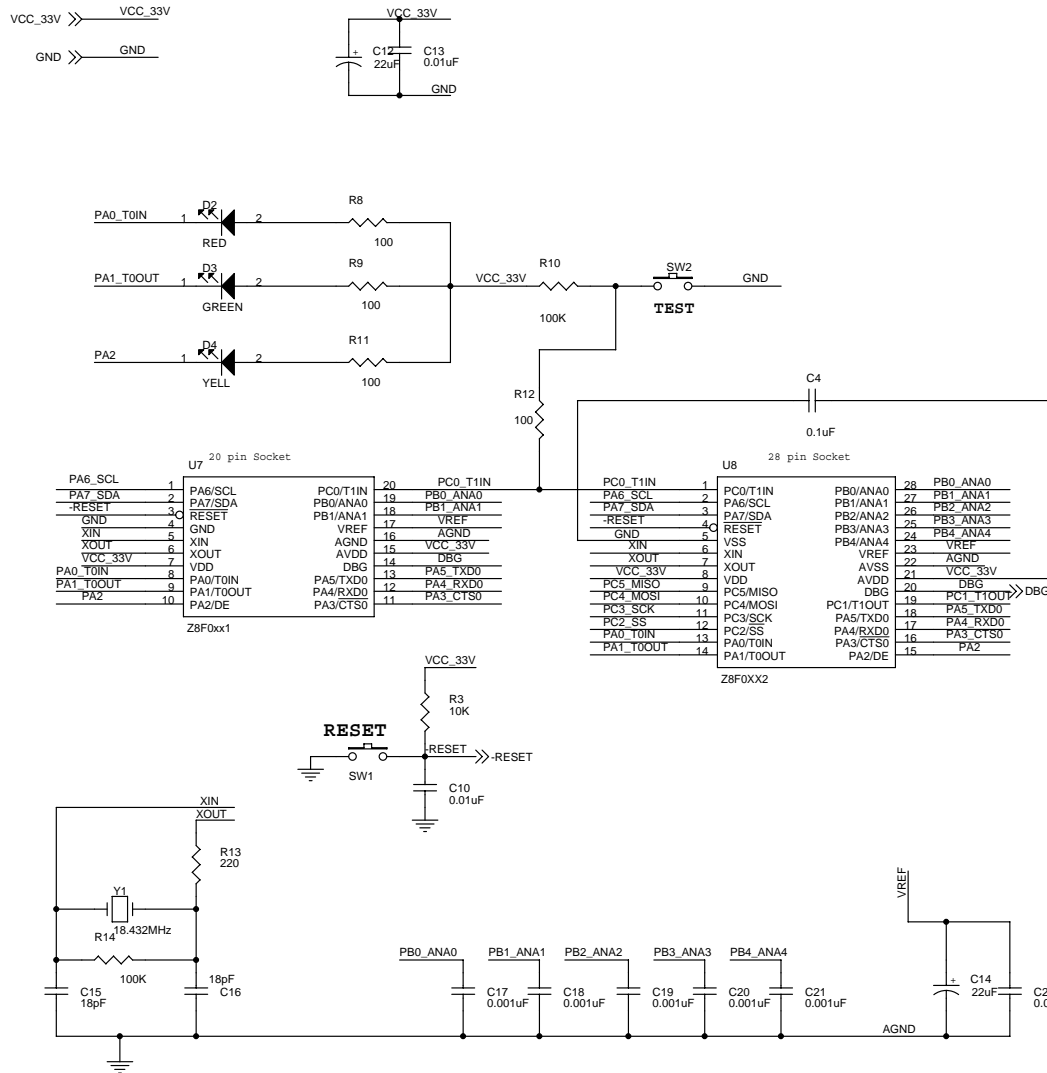
## External Interface Headers JP1 and JP2

The external interface headers, JP1 and JP2 contain no connectors when the board is shipped. You can insert 0.1" space connectors of choice.



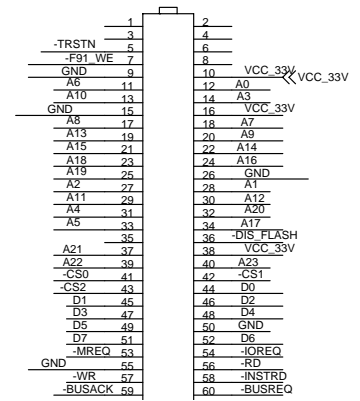
# Schematics

This section includes schematics for the Z8 Encore! 8K/4K Evaluation Board.

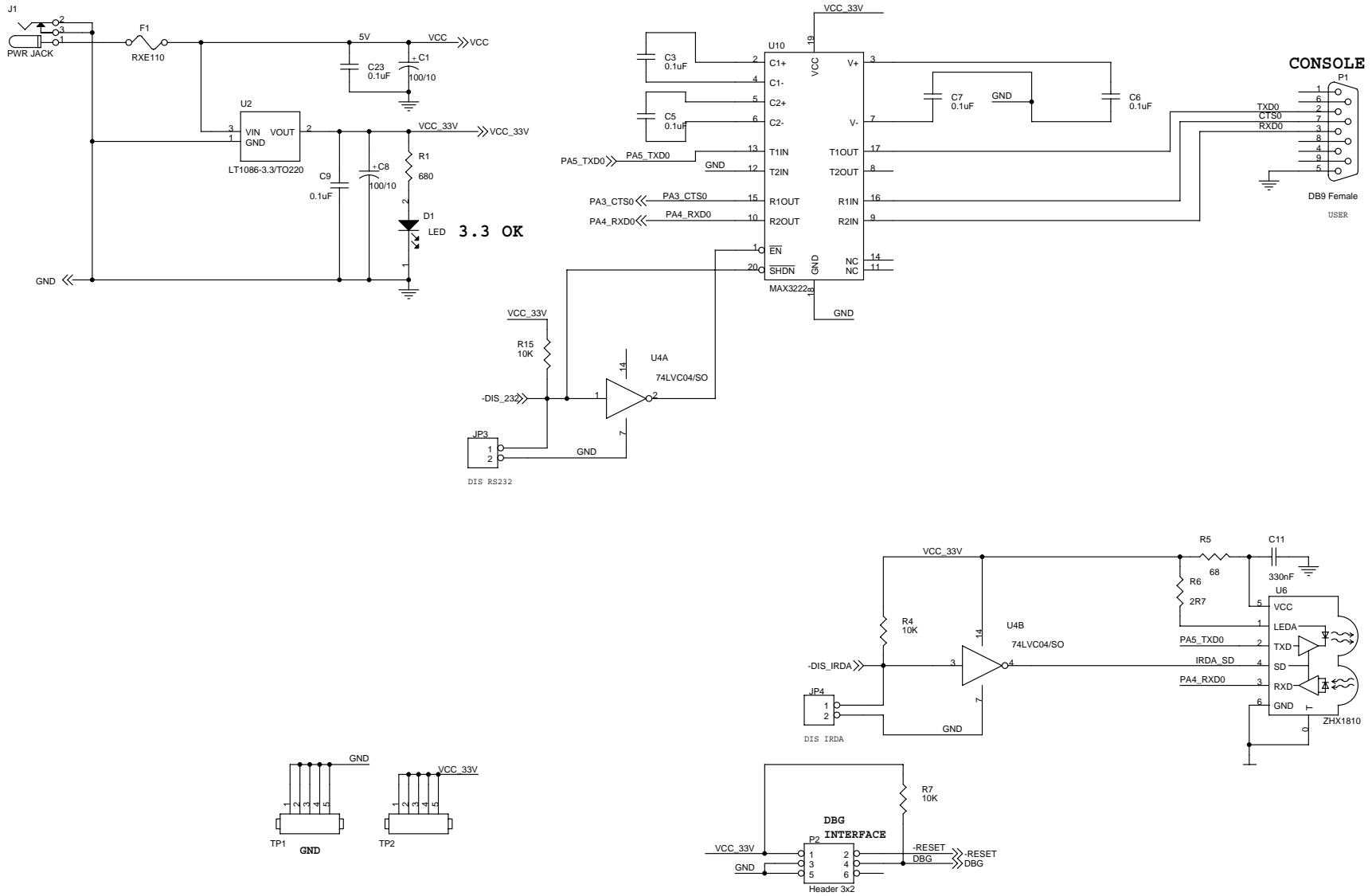


If Module is plugged onto the Dev Platform the local RS232 interface is disabled by pin 50 of JP2

connector 1 for reference only



Schematic, Z8 Encore! 8K/4K MCU Evaluation Board, Page 1 of 2



Schematic, Z8 Encore! 8K/4K Evaluation Board Page 2 of 2





# Customer Support

If you experience any problems while operating this product, please check the ZiLOG Knowledge Base:

<http://kb.zilog.com/kb/oKBmain.asp>

If you cannot find an answer or have further questions, please see the ZiLOG Technical Support web page:

<http://support.zilog.com>