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Z8F08A28100KIT

Z8 Encore! XP® F08xA Series Development Kit

User Manual

UM018603-1005

Z8 Encore! XP® F08xA Series Development Kit
User Manual

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Revision History

Each instance in Table 1 reflects a change to this document from its previous revision. To see more detail, click the appropriate link in the table.

Table 1. Revision History of this Document

Date	Revision Level	Section	Description	Page #
Feb. 2005	2	Introduction	Corrected typo in development kit name.	1
October 2005	3	F08xA Series Development Boar	Corrected typo in the MCU features list; updated schematic for board rev C.	8, 13

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Safeguards

The following precautions 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).

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Introduction

The Z8 Encore! XP® F08xA Series MCU is part of the line of ZiLOG microcontroller products.

The Z8 Encore! XP® F08xA Series MCU Development Kit (Z8F08A28100KIT) enables users to become familiar with the hardware and software tools available with this product. This kit consists of the 8KB version of the Z8 Encore! Development board that supports and presents the features of the Z8 Encore! XP F08xA Series. This kit allows users to begin writing application software and contains all supporting documents.

This manual acquaints users with the Z8 Encore! XP F08xA Series MCU Development Kit, and gives instructions on setting up and using the tools to start building designs and applications.

Kit Contents

The Z8 Encore! XP F08xA Series MCU Development Kit contains the following:

Hardware

- Z8 Encore! XP F08xA Series Development board
- Serial Smart Cable for PC to Z8 Encore! XP F08xA Series Development board (DB9 to six-pin male)
- 5VDC power supply

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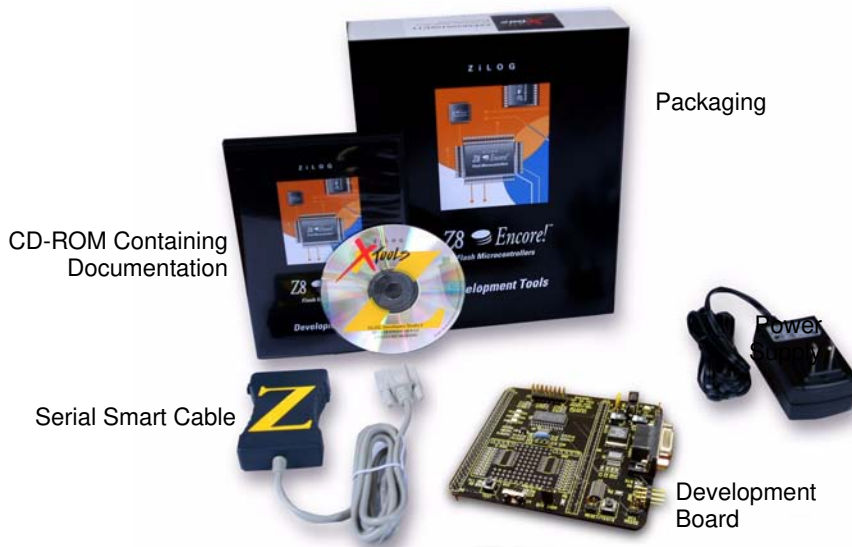
Figure 1. Z8 Encore! XP® F08xA Series Development Kit Contents

Software (on CD-ROM)

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

Documentation

- Quick Start Guide
- Registration card
- Z8 Encore! XP F08xA Series technical documentation (on CD-ROM)

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- – Development Kit User Manual
- – ZDS II - IDE User Manual
- – eZ8 CPU User Manual
- – Application notes

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

The documentation can be installed by the user 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 on the user's system Windows Explorer can be used to select any document to be viewed with your favorite PDF file viewer.

System/Software Requirements

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

Supported Host System Configuration

- Win98 Second Edition, WinNT 4.0 Service Pack 6, Win2000 Service Pack 3, WinXP Professional Service Pack 1
- PentiumII/233MHz 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

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Installation

Follow the directions in the Quick Start Guide for software installation and setup of the Z8 Encore! XP® F08xA Series Development kit.

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F08xA Series Development Board

Introduction

The Z8 Encore! XP® F08xA Series Development board is a development and prototyping board for the Z8 Encore! XP F08xA Series MCU. The board provides customers with a tool to evaluate features of Z8 Encore! XP F08xA Series MCU, and to start developing an application before building the hardware.

Figure 1. Z8 Encore! XP® F08xA Series Development Board

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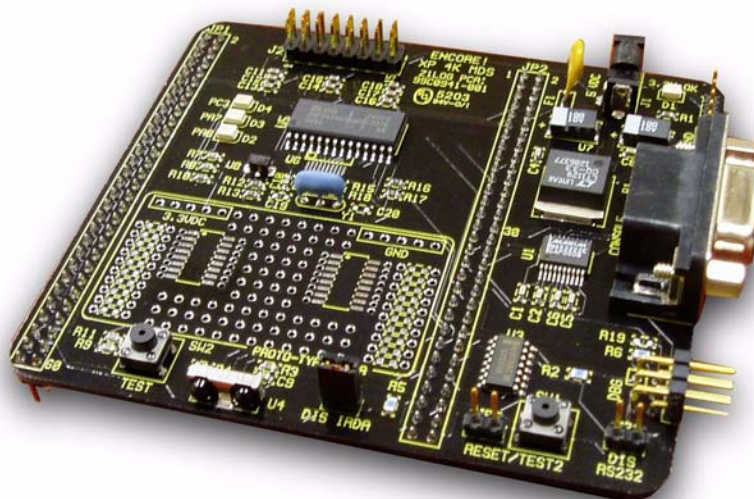
Features

- Z8 Encore!® MCU (28-pin SOIC)

- 3 LEDs

- RS-232 interface

- IrDA transceiver

- Two pushbuttons, RESET and TEST

- 5 VDC power connector

- On-Chip Debugger interface

- 20 MHz Ceramic Oscillator (Y1)

- Header for ADC input

- Prototyping area

- External interface connectors JP1 and JP2

- 2.7–3.6 V operating voltage with 5V-tolerant inputs

MCU

The Z8 Encore! XP F08xA Series 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® instructions. The rich peripheral set of the Z8 Encore! XP F08xA Series makes it suitable for a variety of applications including motor control, security systems, home appliances, personal electronic devices, and sensors.

The Development board contains circuitry to support and present all the features of the Z8 Encore! XP F08xA Series. The main features of the Z8 Encore! XP F08xA Series are:

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- eZ8 core CPU

- 8KB Flash memory with in-circuit programming capability

- 1KB register RAM

- 8-channel, 10-bit analog-to-digital converter (ADC)

- Full-duplex UART

- Infrared Data Association (IrDA)-compliant infrared encoder/decoder

- Two 16-bit timers with capture, compare, and PWM capability

- Watch-Dog Timer (WDT) with internal RC oscillator

- Eleven (20-pin package) or nineteen (28-pin package) I/O pins

- Programmable priority interrupts

- On-Chip Debugger

- Voltage Brown-out Protection (VBO)

- Power-On Reset (POR)

- 2.7–3.6 V operating voltage with 5V-tolerant inputs

- Operating temperatures: 20° ±10° C

For further information on the Z8 Encore!® family of devices, consult the product specification, P/N PS0247, available for download from www.zilog.com.

UART with IrDA Endec

The Z8 Encore! XP F08xA Series (component U5) contains a fully-functional, high-performance UART with Infrared Encoder/Decoder (ENDEC). The Infrared Endec is integrated with an on-chip UART allowing easy communication between the Z8 Encore!® XP F08xA Series and IrDA transceivers. Infrared communication provides secure, reliable, low-

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cost, point-to-point communication between PCs, PDAs, cell phones, printers and other infrared enabled devices.

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
JP5	OUT	U5 $\overline{\text{RESET}}$/ PD0	PD0 (GPIO)	X
JP5	IN	U5 $\overline{\text{RESET}}$/ PD0	$\overline{\text{RESET}}$ when SW1 pressed	
Note: * These jumpers must not be OUT at the same time				

External Interface Headers JP1 and JP2

External interface headers JP1 and JP2 are shown in the schematic on page 13.

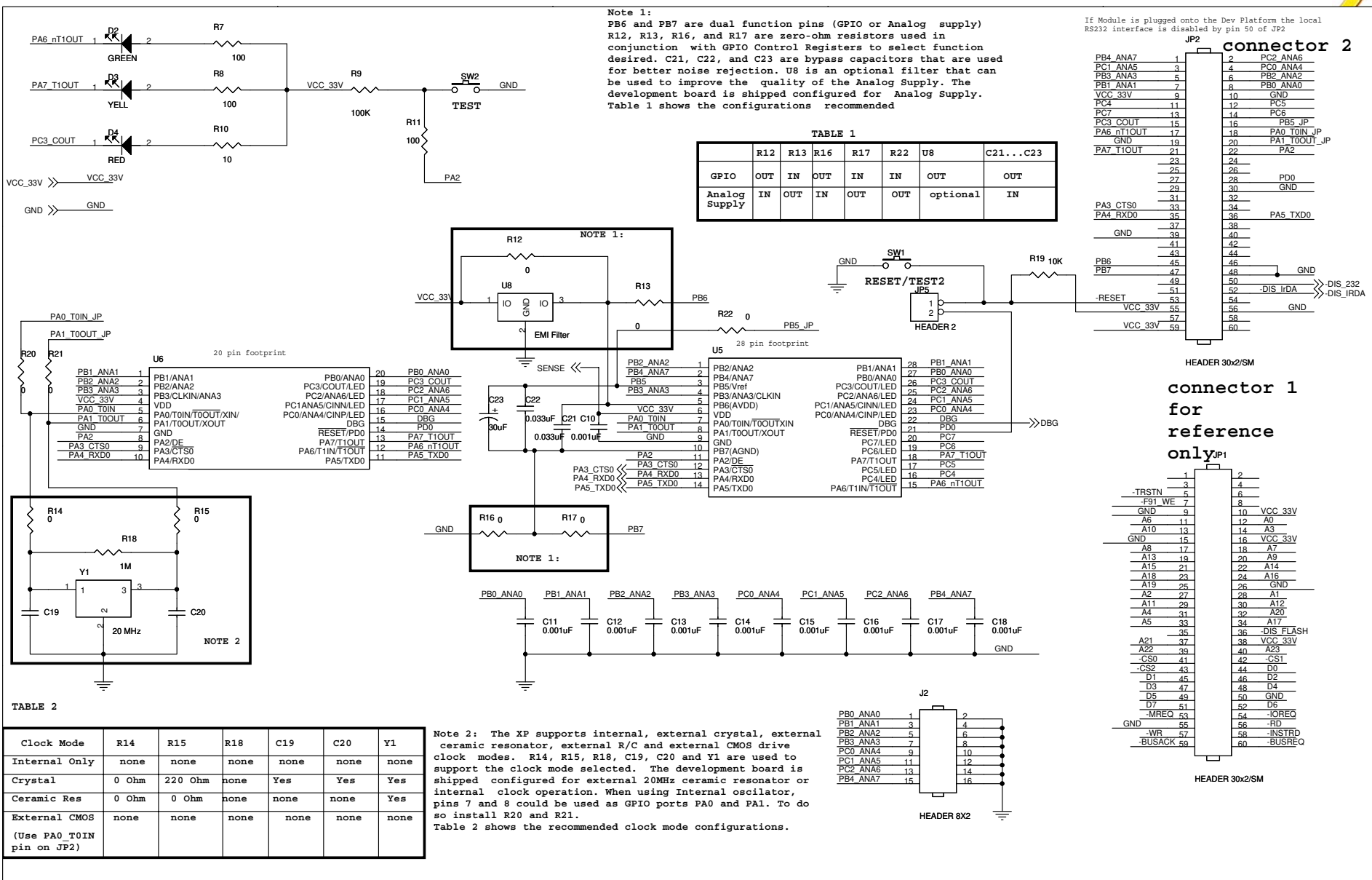Z8 Encore! XP® **F08xA Series Development Kit**
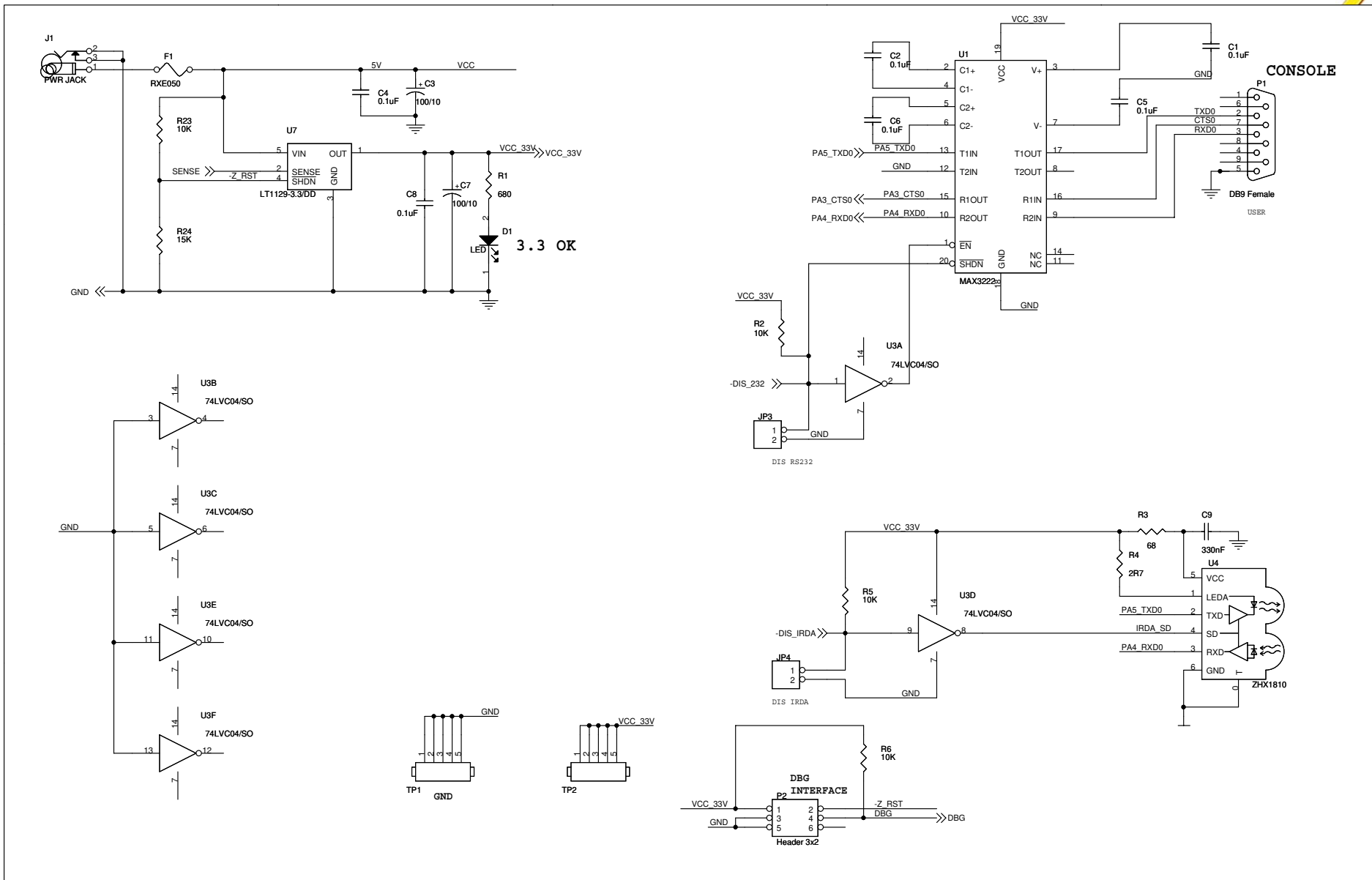**User Manual**

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Schematic

This section includes schematics for the Z8 Encore! XP® F08xA Series Development Board.

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Note 1:
PB6 and PB7 are dual function pins (GPIO or Analog supply)
R12, R13, R16, and R17 are zero-ohm resistors used in
conjunction with GPIO Control Registers to select function
desired. C21, C22, and C23 are bypass capacitors that are used
for better noise rejection. U8 is an optional filter that can
be used to improve the quality of the Analog Supply. The
development board is shipped configured for Analog Supply.
Table 1 shows the configurations recommended

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

JP2
connector 2

TABLE 1

	R12	R13	R16	R17	R22	U8	C21...C23
GPIO	OUT	IN	OUT	IN	IN	OUT	OUT
Analog Supply	IN	OUT	IN	OUT	OUT	optional	IN

NOTE 1:

RESET/TEST2

20 pin footprint

28 pin footprint

connector 1
for
reference
only

NOTE 2

NOTE 1:

TABLE 2

Clock Mode	R14	R15	R18	C19	C20	Y1
Internal Only	none	none	none	none	none	none
Crystal	0 Ohm	220 Ohm	none	Yes	Yes	Yes
Ceramic Res	0 Ohm	0 Ohm	none	none	none	Yes
External CMOS (Use PA0_T0IN pin on JP2)	none	none	none	none	none	none

Note 2: The XP supports internal, external crystal, external
ceramic resonator, external R/C and external CMOS drive
clock modes. R14, R15, R18, C19, C20 and Y1 are used to
support the clock mode selected. The development board is
shipped configured for external 20MHz ceramic resonator or
internal clock operation. When using Internal oscilator,
pins 7 and 8 could be used as GPIO ports PA0 and PA1. To do
so install R20 and R21.
Table 2 shows the recommended clock mode configurations.

J2
HEADER 8X2

HEADER 30x2/SM

HEADER 30x2/SM

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