



Z i L O G

# Z8F160x Series

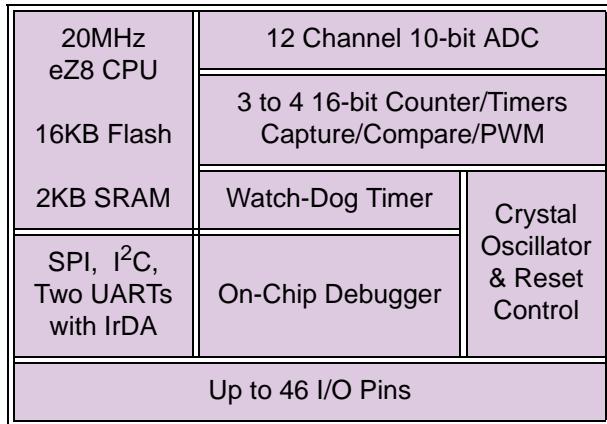
Z8  Encore!

**Advanced 20MHz 16KB Flash Microcontroller**

PB009111-0903

**Product Brief**

## Product Block Diagram



## Z8 Encore!® MCU Features

- 20MHz ZiLOG® eZ8 microprocessor core
- 16KB Flash program memory
- 2KB register RAM
- Up to twelve channels, 10-bit A/D conversion
- 3 or 4 enhanced 16-bit timer blocks with PWMs and Capture and Compare. The 40- and 44-pin packages feature only 3 timers. The fourth timer is available only in the 64- and 68-pin packages.
- Full-duplex SPI, I<sup>2</sup>C, and two UART ports with IrDA encoder/decoders
- Up to 46 available I/O pins
- 3-channel DMA controller
- On-chip debug with break and trap capability
- Single-pin Flash programming
- Watch-Dog Timer
- Up to 24 vectored interrupts
- Power-on reset and voltage brown-out
- 3.0 to 3.6 operating voltage with 5V-tolerant inputs
- Operating temperature: Standard (0° to 70°C) and Extended (-40° to +105°C)
- 40-, 44-, 64- and 68-pin packages

## Overview

The Z8F160x series of devices are Flash microcontrollers based on ZiLOG®'s advanced eZ8 8-bit microprocessor core. The Z8 Encore!® MCU family of devices sets a new standard for performance and on-chip peripherals.

The Z8F160x series features up to twelve channels of 10-bit A/D conversion for measuring analog signals.

These devices include four enhanced 16-bit timer blocks featuring PWMs and Capture and Compare.

Up to 24 vectored interrupts with programmable priorities provide increased application flexibility.

The new single-pin debugger and programming interface simplifies code development and allows for easy in-circuit programming.

Two full-duplex UARTs provide serial communications and IrDA encoding and decoding capability. SPI and I<sup>2</sup>C ports allow easy incorporation into any system.

## eZ8 Microprocessor Features

- New instructions for improved performance including BIT, BSWAP, BTJ, CPC, LDC, LDCI, LEA, MULT, and SRL
- New instructions support 12-bit linear addressing of the Register File
- Compatible with existing Z8® code
- Up to 10 MIPS operation
- C-Compiler friendly
- 2-9 clock cycles per instruction

## Z8 Encore!® Development Kit

The Z8 Encore!® Development Kit includes the following:

### Hardware

- Z8 Encore!® Evaluation board
- 9VDC universal power supply
- RS-232 DB9 serial cable
- Z8 Encore!® target interface module

### Software

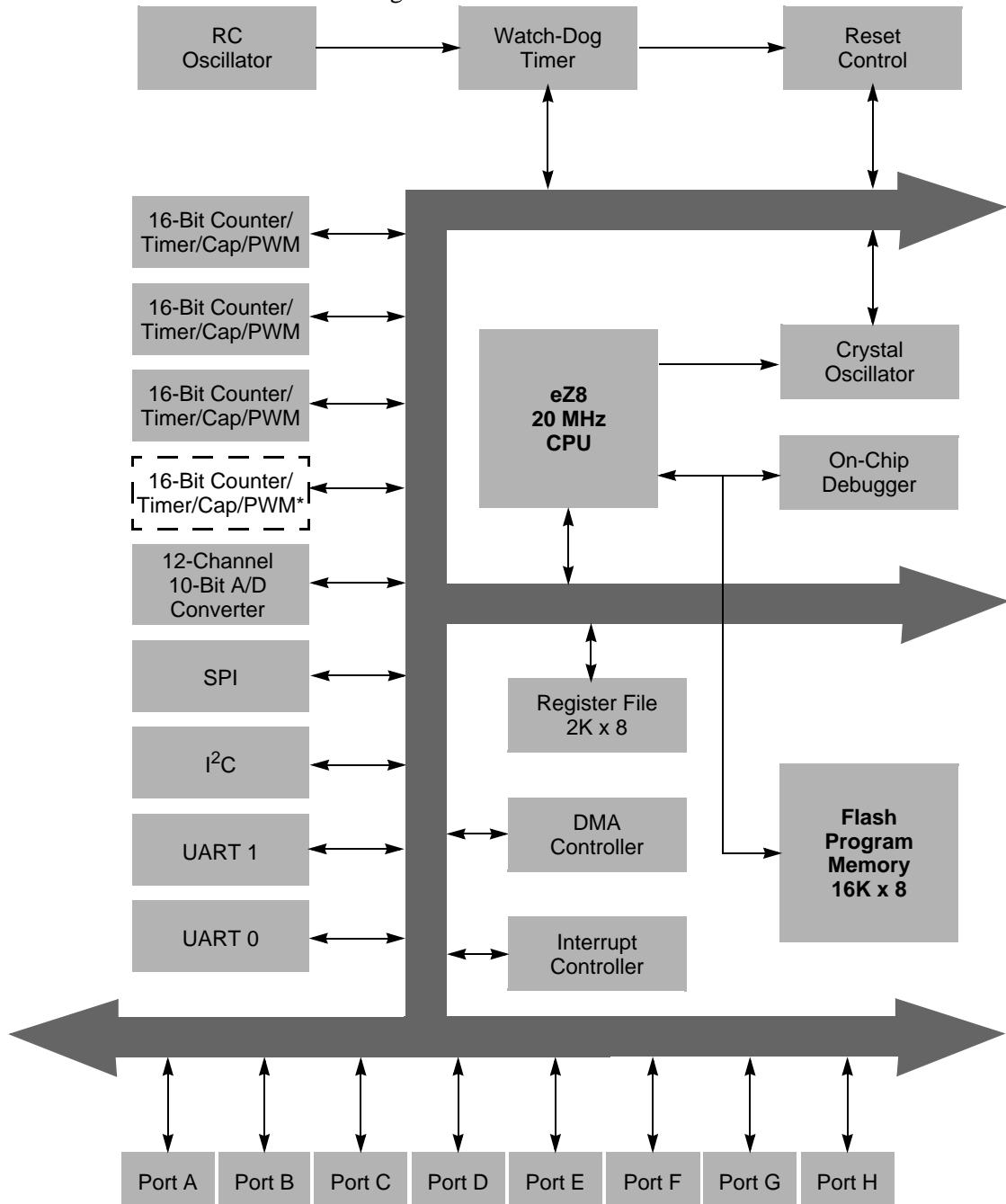
- ZDS II - Z8 Encore!® IDE with ANSI C-Compiler
- Sample code

## Documentation

- Quick Start Guide
- Registration Card
- Z8 Encore!® technical documentation (on CD-ROM):
  - Development Kit User Manual
  - ZDS II - IDE User Manual
  - eZ8 CPU User Manual
  - Product specifications
  - Product briefs
  - Application notes
  - Programmer's Reference Sheet
  - Flyer
  - Selector guide

## Architecture

Figure 1 illustrates the Z8F160x block diagram.



\* The 40- and 44-pin packages feature only 3 timers. The fourth timer is unavailable.

**Figure 1. Z8F160x Block Diagram**

## Ordering Information

Order the Z8F160x series from ZiLOG®, referencing the following part numbers. For more information regarding ordering, please consult your local ZiLOG® sales office. The ZiLOG®

website at [www.zilog.com](http://www.zilog.com) lists all regional offices, as well as additional Z8 Encore!® product information.

Part Number	Flash	RAM	I/O Lines	Interrupts	16-Bit Timer with PWM	10-Bit A/D Channels	I <sup>2</sup> C	SPI	UARTs with IrDA	Description
Standard Temperature: 0° to 70°C										
Z8F1601PM020SC	16KB	2KB	31	23	3	8	1	1	2	PDIP 40-pin package
Z8F1601AN020SC	16KB	2KB	31	23	3	8	1	1	2	LQFP 44-pin package
Z8F1601VN020SC	16KB	2KB	31	23	3	8	1	1	2	PLCC 44-pin package
Z8F1602AR020SC	16KB	2KB	46	24	4	12	1	1	2	LQFP 64-pin package
Z8F1602VS020SC	16KB	2KB	46	24	4	12	1	1	2	PLCC 68-pin package
Extended Temperature: -40° to +105°C										
Z8F1601PM020EC	16KB	2KB	31	23	3	8	1	1	2	PDIP 40-pin package
Z8F1601AN020EC	16KB	2KB	31	23	3	8	1	1	2	LQFP 44-pin package
Z8F1601VN020EC	16KB	2KB	31	23	3	8	1	1	2	PLCC 44-pin package
Z8F1602AR020EC	16KB	2KB	46	24	4	12	1	1	2	LQFP 64-pin package
Z8F1602VS020EC	16KB	2KB	46	24	4	12	1	1	2	PLCC 68-pin package
Z8ENCORE000ZCO										Development Kit

## Part Number Suffix Designations

Z8 F 16 21 P M 020 S C

**Environmental Flow:** C = Plastic Standard

**Temperature Range (°C):**

S = Standard, 0 to 70

E = Extended, -40 to +105

**Speed:**

020 = 20 MHz

**Pin Count:**

M = 40

N = 44

R = 64

S = 68

**Package:**

A = LQFP

P = PDIP

V = PLCC

**Device Type**

**Memory Size:**

16KB, 2KB RAM

**Memory Type:**

F = Flash

**Device Family**

## **Disclaimer**

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