



**Z i L O G**

# Z8F160x Series

**Advanced 20MHz 16KB Flash Microcontroller**

**Z8  Encore!**

**PB009111-0903**

**Product Brief**

## Product Block Diagram

20MHz eZ8 CPU  16KB Flash  2KB SRAM	12 Channel 10-bit ADC	
	3 to 4 16-bit Counter/Timers Capture/Compare/PWM	
	Watch-Dog Timer	Crystal Oscillator & Reset Control
SPI, I <sup>2</sup> C, Two UARTs with IrDA		
	On-Chip Debugger	
Up to 46 I/O Pins		

## Overview

The Z8F160x series of devices are Flash microcontrollers based on ZiLOG<sup>®</sup>'s advanced eZ8 8-bit microprocessor core. The Z8 Encore!<sup>®</sup> 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.

## Z8 Encore!<sup>®</sup> MCU Features

- 20MHz ZiLOG<sup>®</sup> 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



## **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**

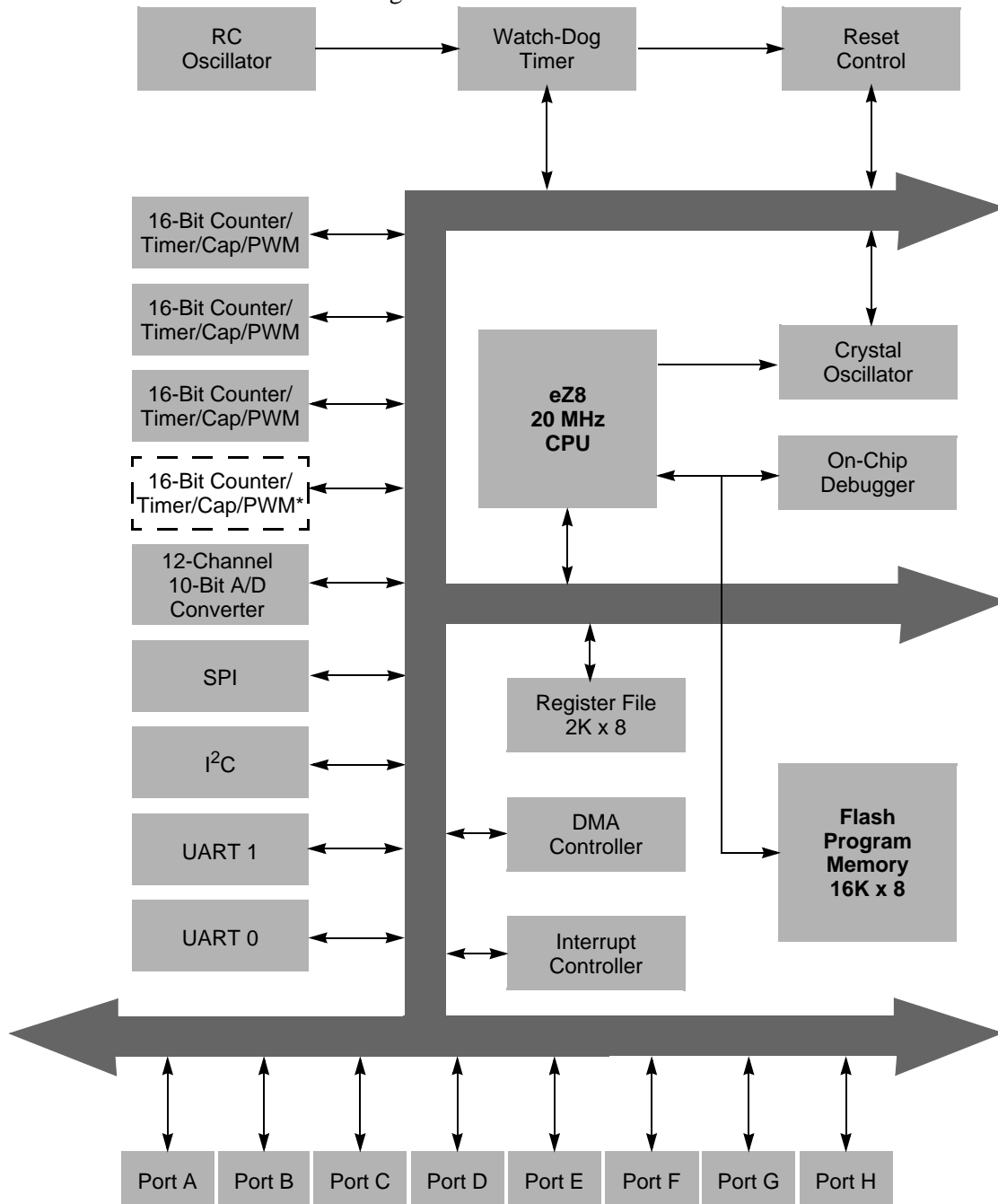
- ZDS II - Z8 Encore!® IDE with ANSI C-Compiler
- Sample code

## **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

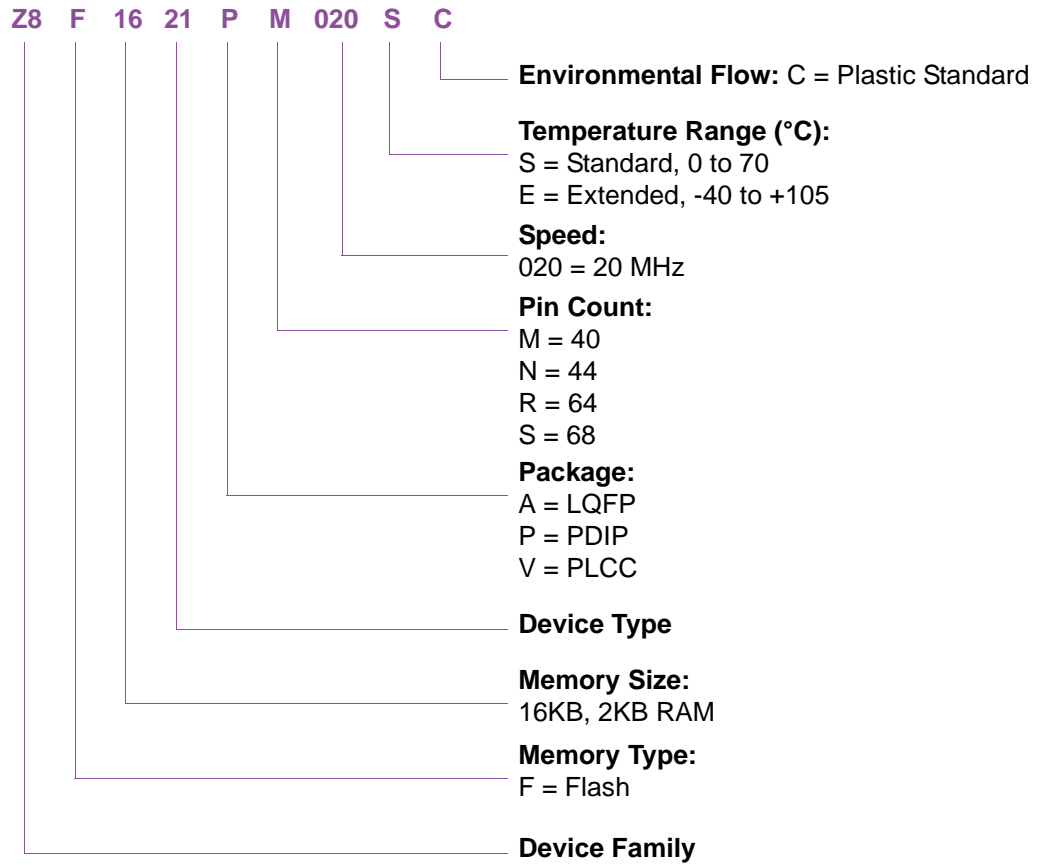
Order the Z8F160x series from ZiLOG<sup>®</sup>, referencing the following part numbers. For more information regarding ordering, please consult your local ZiLOG<sup>®</sup> sales office. The ZiLOG<sup>®</sup>

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





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