



Z i L O G

# Z8F320x Series



**Advanced 20MHz 32KB Flash Microcontroller**

PB009311-0903

Product Brief

## Product Block Diagram

20MHz eZ8 CPU	12 Channel 10-bit ADC	
32KB Flash	3 to 4 16-bit Counter/Timers Capture/Compare/PWM	
2KB SRAM	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 Z8F320x series of devices are Flash microcontrollers based on ZiLOG'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 Z8F320x 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 eZ8 microprocessor core
- 32KB 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 temperatures: 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<sup>®</sup> code
- Up to 10 MIPS operation
- C-Compiler friendly
- 2-9 clock cycles per instruction

## Z8 Encore!<sup>®</sup> Development Kit

The Z8 Encore!<sup>®</sup> Development Kit includes the following:

### Hardware

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

### Software

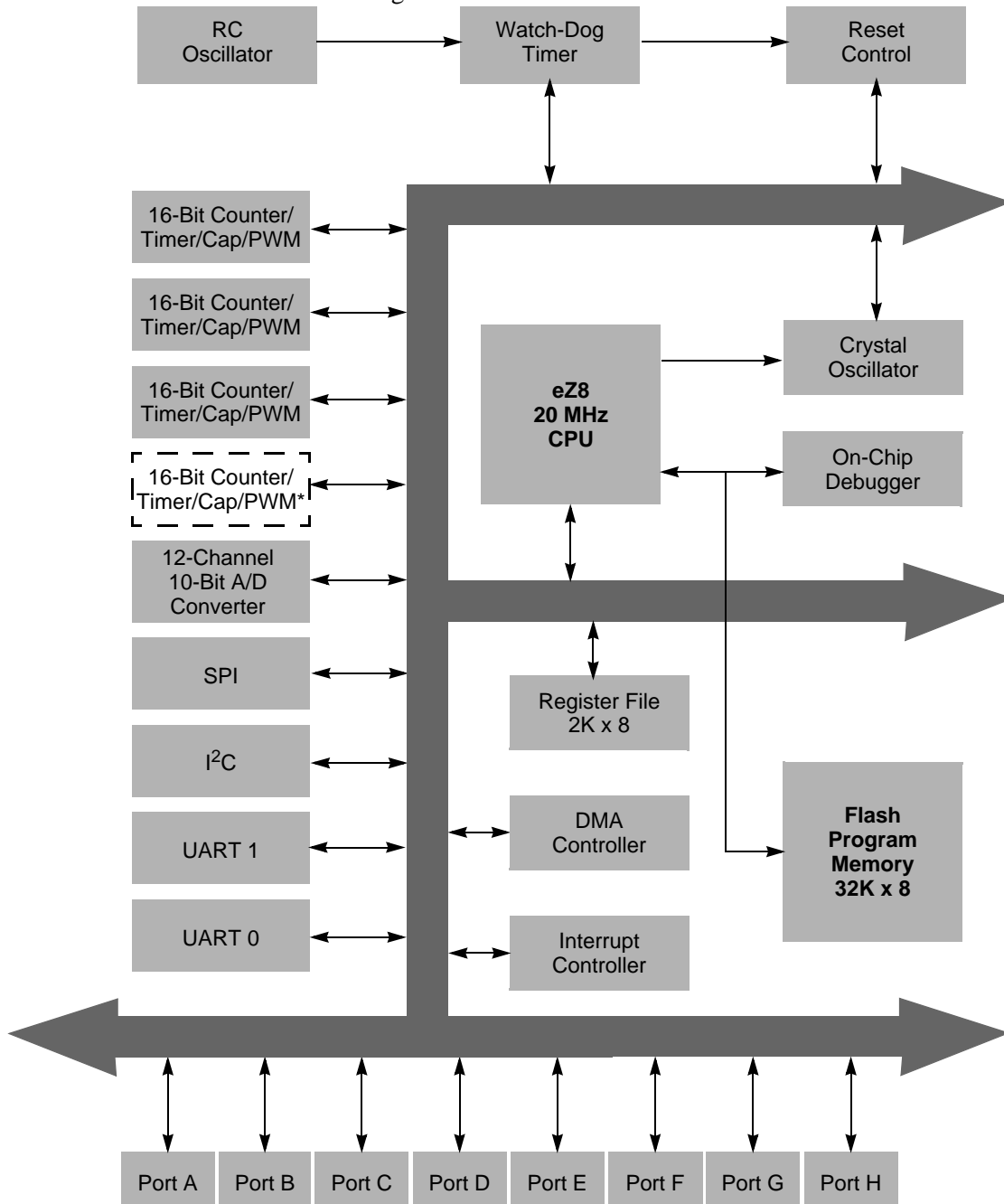
- ZDS II - Z8 Encore!<sup>®</sup> IDE with ANSI C-Compiler
- Sample code

## Documentation

- Quick Start Guide
- Registration card
- Z8 Encore!<sup>®</sup> 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 Z8F320x block diagram.



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

Figure 1. Z8F320x Block Diagram



## Ordering Information

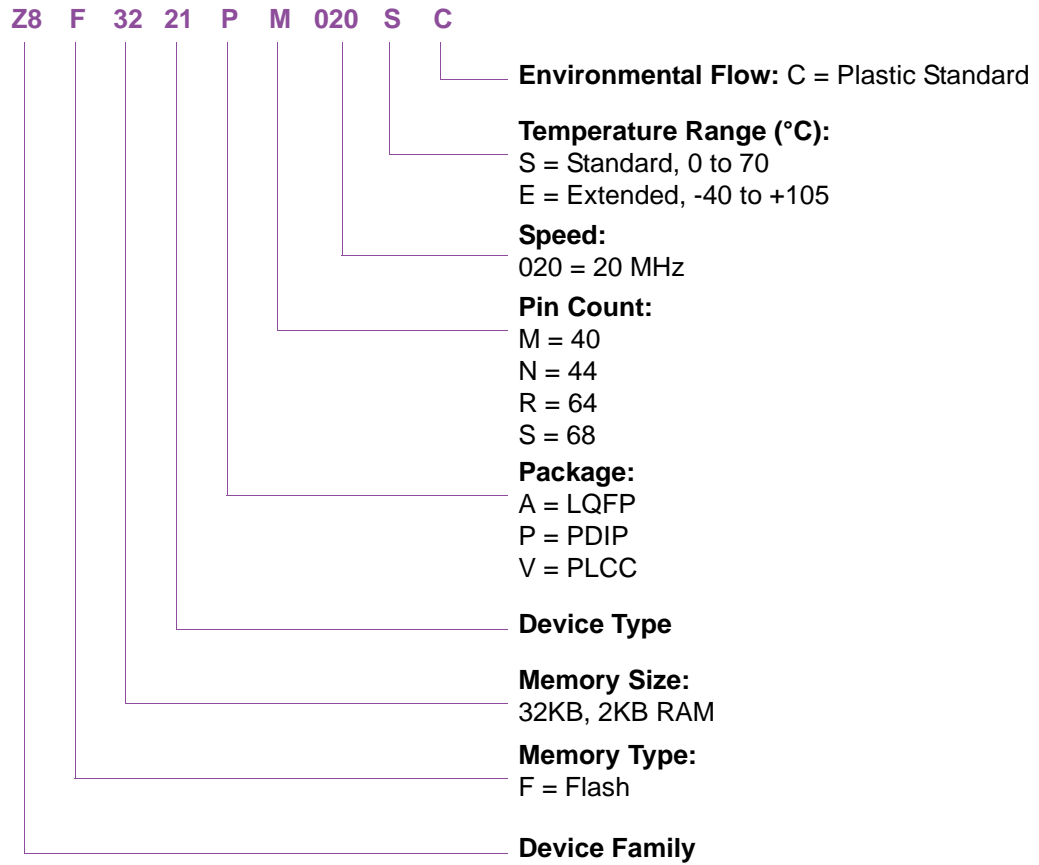
Order the Z8F320x series from ZiLOG, referencing the following part numbers. For more information regarding ordering, please consult your local

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

Part Number	Flash	RAM	I/O Lines	Interrupts	16-Bit Timers with PWM	10-Bit A/D Channels	I <sup>2</sup> C	SPI	UARTs with IrDA	Description
Standard Temperature: 0° to 70°C										
Z8F3201PM020SC	32KB	2KB	31	23	3	8	1	1	2	PDIP 40-pin package
Z8F3201AN020SC	32KB	2KB	31	23	3	8	1	1	2	LQFP 44-pin package
Z8F3201VN020SC	32KB	2KB	31	23	3	8	1	1	2	PLCC 44-pin package
Z8F3202AR020SC	32KB	2KB	46	24	4	12	1	1	2	LQFP 64-pin package
Z8F3202VS020SC	32KB	2KB	46	24	4	12	1	1	2	PLCC 68-pin package
Extended Temperature: -40° to 105°C										
Z8F3201PM020EC	32KB	2KB	31	23	3	8	1	1	2	PDIP 40-pin package
Z8F3201AN020EC	32KB	2KB	31	23	3	8	1	1	2	LQFP 44-pin package
Z8F3201VN020EC	32KB	2KB	31	23	3	8	1	1	2	PLCC 44-pin package
Z8F3202AR020EC	32KB	2KB	46	24	4	12	1	1	2	LQFP 64-pin package
Z8F3202VS020EC	32KB	2KB	46	24	4	12	1	1	2	PLCC 68-pin package
Z8ENCORE000ZCO										Development Kit



## Part Number Suffix Designations





## **Disclaimer**

©2003 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. Devices sold by ZiLOG, Inc. are covered by warranty and limitation of liability provisions appearing in the ZiLOG, Inc. Terms and Conditions of Sale. ZiLOG, Inc. makes no warranty of merchantability or fitness for any purpose. 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.