



Z8 Encore! XP[®] Series MCUs

High-Performance Microcontrollers with Extended Peripherals



OVERVIEW

ZiLOG once again delivers a new standard for performance with its Z8 Encore! XP[®] Series Flash microcontrollers. The Z8 Encore! XP[®] microcontrollers are based on the ZiLOG eZ8[®] core, and feature an extensive set of on-chip peripherals.

The Z8 Encore! XP[®] Series devices features up to eight, single-ended/differential channels of sigma-delta 10-bit A/D conversion with buffered or unbuffered differential input and a transimpedance amplifier for current measurement. The ADC is capable on zilog.com. An on-chip temperature sensor allows die temperature measurement over a range of -40 °C to +125 °C.

On-chip are two enhanced 16-bit timer blocks, featuring Capture/Compare, that allow you to precisely measure system events and generate two independent PWM outputs. The devices support up to 18 vectored interrupts with programmable priorities, effectively increasing CPU bandwidth and increasing application flexibility. The single-pin debugger and allows for easy in-circuit programming, making it possible for you to create designs faster and easier.

When you need peripheral support, you can take advantage of features like the full-duplex UART for serial communications and IrDA encoding/decoding capability (the UARTs can be programmed as a basic 16-bit timer as well). The on-chip Internal Precision Oscillator (5 MHz/32 kHz) can serve as a trimmable clock source that requires no external components and has the best-in-class accuracy. When it comes to peripherals, ZiLOG gives you the flexibility you need to create innovative designs without limits.

FEATURES

- 20 MHz eZ8 CPU core yields 10 MIPS
- Enhanced instructions support 12-bit linear addressing of the Register File for improved performance, including BIT, BSWAP, BTJ, CPC, LDC, LDCI, LEA, MULT, and SRL
- Up to 8 KB of Flash with in-circuit programming capability
- Up to 1 KB of RAM and 128 B of non-volatile data storage
- Up to 8-channel, 10-bit sigma-delta A/D converter
- On-Chip analog temperature sensor
- Analog comparator
- Analog transimpedance (current sense) amplifier
- Internal precision oscillator (5 MHz/32 kHz) w/±4% accuracy over full voltage and temperature ranges
- Crystal oscillator with three power settings and external RC network option
- Full-duplex 9-bit UARTs with bus transceiver Driver Enable Control
- Infrared Data Association (IrDA) compliant infrared encoder/decoders
- Two 16-bit timers with capture, compare, and PWM capability
- Watch-Dog Timer (WDT) with internal RC oscillator
- Programmable Low Voltage Detect (8-pin only)
- Direct LED Drive (Port C only)
- Up to 13, 5 V-tolerant input pins
- Up to 25 I/O pins depending upon packages
- Up to 18 interrupts with configurable priority
- On-Chip Debugger
- Voltage brown-out protection (VBO) and Power-On Reset (POR)
- Low-power modes (STOP & HALT)
- 2.7 V to 3.6 V operating voltage
- Available in 8-, 20- and 28-pin packages
- Available in standard (0° to 70 °C), extended (-40 °C to +105 °C), and automotive (-40 °C to 125 °C) temperature ranges

Z8 ENCORE! XP[®] APPLICATIONS

- Motor Control
- Power Management
- Personal Electronic Devices
- Intelligent Cooling
- Battery Charging
- Security Systems
- Sensor Interfacing



Z8 Encore! XP® Series MCUs

1 to 8 KB Flash	256 B to 1 KB RAM	16 B to 128 KB NVDS	Up to 8 Channels 10-bit ADC
Two 16-bit Timers/PWM	20 MHz eZ8 CPU	Trans-Impedance Amplifier	
Watch-Dog Timer with RC Oscillator		POR/VBO & Reset Control	
UARTs with IrDA	On-Chip Debugger	Crystal/RC Oscillator	
Temperature Sensor	Analog Comparator	Internal Precision Oscillator	
Up to 25 General-Purpose I/O Pins			



* Basic Opto-Isolated USB Cable configuration also available

Z8 Encore! XP® Series MCU Development Kit Contents

Hardware

- Z8 Encore! XP® 4k Series Development Board
- Serial or USB Smart Cable
- 5 V DC Universal Power Supply

Software

- ZDS II Integrated Development Environment (IDE)
- ANSI C-Compiler
- Sample Code

Documentation/CD-ROM

- Development Kit Quick Start Guide
- Development Kit User Manual
- ZDS II - IDE User Manual
- eZ8 CPU User Manual
- Product Specifications/ App. Notes

Device Chart and Ordering Information

Device	Memory			Speed (MHz)	I/O Lines	16-bit Timers	10-bit A/D Channels	UART	Comparator	Other Features	Operating Voltage	Temp. Range (°C)	Pin Count
	Flash (Bytes)	NVDS (Bytes)	SRAM (Bytes)										
Z8F082A	8K	-	1K	20	23, 17, 6	2	8, 7, 4	1	1	Temp. Sensor, Int Prec. Oscillator	2.7 - 3.6 V	-40° to 125°	28, 20, 8
Z8F081A	8K	-	1K	20	25, 17, 6	2	-	1	1	Temp. Sensor, Int Prec. Oscillator	2.7 - 3.6 V	-40° to 125°	28, 20, 8
Z8F042A	4K	128	1K	20	23, 17, 6	2	8, 7, 4	1	1	Temp. Sensor, Int Prec. Oscillator	2.7 - 3.6 V	-40° to 125°	28, 20, 8
Z8F041A	4K	128	1K	20	25, 17, 6	2	-	1	1	Temp. Sensor, Int Prec. Oscillator	2.7 - 3.6 V	-40° to 125°	28, 20, 8
Z8F022A	2K	64	512	20	23, 17, 6	2	8, 7, 4	1	1	Temp. Sensor, Int Prec. Oscillator	2.7 - 3.6 V	-40° to 125°	28, 20, 8
Z8F021A	2K	64	512	20	25, 17, 6	2	-	1	1	Temp. Sensor, Int Prec. Oscillator	2.7 - 3.6 V	-40° to 125°	28, 20, 8
Z8F012A	1K	16	256	20	23, 17, 6	2	8, 7, 4	1	1	Temp. Sensor, Int Prec. Oscillator	2.7 - 3.6 V	-40° to 125°	28, 20, 8
Z8F011A	1K	16	256	20	25, 17, 6	2	-	1	1	Temp. Sensor, Int Prec. Oscillator	2.7 - 3.6 V	-40° to 125°	28, 20, 8

Development Tool Ordering Information

Z8F08A28100KITG (RoHS)	Z8 Encore! XP® 8 K Series Development Kit (20- and 28- pin)
Z8F04A28100KITG (RoHS)	Z8 Encore! XP® 4 K Series Development Kit (20- and 28- pin)
Z8F04A08100KITG (RoHS)	Z8 Encore! XP® 4 K Series Development Kit (8- pin only)
ZUSBSC00100ZACG (RoHS)	USB Smart Cable Accessory Kit
ZUSBOPTSC01ZACG (RoHS)	Opto-Isolated USB Smart Cable

Order your ZiLOG Development Kits at <http://www.zilog.com> to get your applications to market in record time.

Z8 Encore!® and Z8 Encore! XP® are registered trademarks of ZiLOG, Inc. in the United States and in the other countries. FL005906-1206

