Intelligent Sensor Solutions
Z8 Encore! XP® 8-bit Microcontrollers

ZiLOG

SENSOR APPLICATIONS

XP FAMILY

SENSOR TYPES COMMONLY SUPPORTED

- HVAC Temperature control
- CO, Smoke, and heat sensors
- Pressure sensors

FEATURES THAT SEPARATE US FROM THE REST

- **On-chip integrated transimpedance amplifier (op-amp) for direct coupling to the sensor's output current**
- **8-Channel, 10-bit high resolution A/D converter to achieve higher measurement accuracy**
- **On-chip integrated temperature sensor for real-time measurement of the system temperature as well as temperature-based calibration of the sensor output signals**
- **On-chip integrated analog comparator**
- **Low power consumption in standby modes**

THE Z8 ENCORE! XP® MICROCONTROLLER

ZiLOG's Z8 Encore! XP Flash microcontrollers offer high-performance and feature-rich peripherals in a portable, yet powerful 8-bit package. No other 8-bit MCU can offer the flexibility of our on-chip integrated transimpedance amplifier, high resolution A/D converter, and temperature sensor in an application-specific, cost-effective solution for intelligent sensor applications. Add to this an extensive development tool suite and full technical support, and you have a complete embedded control solution that affords a fast design cycle for your end application.

DESIGN CHALLENGES

Accurate Output Signal Measurement
For accurate signal measurement with external gain settings, this MCU has a built-in transimpedance amplifier (op-amp) that allows your sensor interfacing to not be limited by your MCU's fixed amplification. In addition, the high accuracy differential input ADC can provide up to 14-bits of accuracy with software calibration.

Proper Temperature Detection
The built-in temperature sensor on the Z8 Encore! XP can be used to automatically calibrate the processed sensor output, such as the measured CO PPM level, allowing more accurate temperature detection.

Low Battery Life
Using the sleep mode or WDT features, the Z8 Encore! XP MCU can reduce your total power consumption by waking your application, quickly monitoring your results and powering down-all a function of the low stand-by current available on the MCU.

High System Cost
Highly integrated microcontroller features, such as the transimpedance amplifier and the temperature sensor, give you the flexibility to reduce your overall system cost by reducing the need for more costly external components.

Sensor Interfacing Solutions
Z8 Encore! XP® 8-bit Microcontrollers

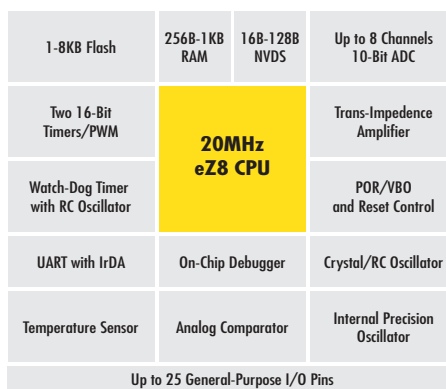| SENSOR APPLICATIONS	XP FAMILY

XP SERIES FEATURES

- 20MHz CPU core
- 1, 2, 4, or 8KB Flash memory
- Up to 1KB RAM
- Up to 128B NVDS
- 8-channel 10-bit ADC with internal reference and differential input
- Transamplifier/Operational amplifier
- Internal Precision Oscillator
- Analog comparator
- Temperature Sensor
- UART with IrDA
- Two 16-bit timer PWMs with capture/compare
- Single-pin debug with break and trap
- Single-pin flash programming
- Watch Dog Timer (WDT)
- Voltage Brown Out (VBO)
- Power On Reset (POR)
- 8-, 20-, and 28-pin SOIC, SSOP, QFN, and PDIP packages
- 2.7-3.6V operation
- Standard (0° to 70°C) and extended (-40° to 105°C) temperature range

REFERENCE TOOLS

- Reference designs
- Application notes

BLOCK DIAGRAM

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

ORDERING INFORMATION

Z8 Encore! XP® Series MCU Development Kits

Our low cost development tools contain everything you need to evaluate and design your next battery charging project. Each kit Includes a Z8 Encore! XP series MCU development board, a USB debugging and programming cable, and our ZDS II Integrated Development Environment (IDE) with a full ANSI C-compiler.

FOR MORE INFORMATION

Visit us at www.zilog.com or call us at 1 (866) GO ZiLOG

Device	MEMORY			Operating Voltage	Temp. Range (°C)	Pin Count	Development Kit
	Flash (Bytes)	NVDS (Bytes)	SRAM (Bytes)				
Z8F042A	4K	128	1K	2.7-3.6V	-40° to 105°	28,20 8	Z8F04A28100KIT Z8F04A08100KIT
Z8F041A	4K	128	1K	2.7-3.6V	-40° to 105°	28,20 8	Z8F04A28100KIT Z8F04A08100KIT
Z8F022A	2K	64	512	2.7-3.6V	-40° to 105°	28,20 8	Z8F04A28100KIT Z8F04A08100KIT
Z8F021A	2K	64	512	2.7-3.6V	-40° to 105°	28,20 8	Z8F04A28100KIT Z8F04A08100KIT
Z8F012A	1K	16	256	2.7-3.6V	-40° to 105°	28,20 8	Z8F04A28100KIT Z8F04A08100KIT
Z8F011A	1K	16	256	2.7-3.6V	-40° to 105°	28,20 8	Z8F04A28100KIT Z8F04A08100KIT