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What is "Embedded - Microcontrollers"?

"Embedded - Microcontrollers" refer to small, integrated circuits designed to perform specific tasks within larger systems. These microcontrollers are essentially compact computers on a single chip, containing a processor core, memory, and programmable input/output peripherals. They are called "embedded" because they are embedded within electronic devices to control various functions, rather than serving as standalone computers. Microcontrollers are crucial in modern electronics, providing the intelligence and control needed for a wide range of applications.

Applications of "<u>Embedded -</u> <u>Microcontrollers</u>"

Details

Product Status	Active
Core Processor	eZ8
Core Size	8-Bit
Speed	20MHz
Connectivity	-
Peripherals	Brown-out Detect/Reset, LED, POR, PWM, WDT
Number of I/O	23
Program Memory Size	8KB (8K x 8)
Program Memory Type	FLASH
EEPROM Size	-
RAM Size	256 x 8
Voltage - Supply (Vcc/Vdd)	2.7V ~ 3.6V
Data Converters	A/D 8x10b
Oscillator Type	Internal
Operating Temperature	0°C ~ 70°C (TA)
Mounting Type	Through Hole
Package / Case	28-DIP (0.600", 15.24mm)
Supplier Device Package	-
Purchase URL	https://www.e-xfl.com/product-detail/zilog/z8f0830pj020sg

Email: info@E-XFL.COM

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Warning: DO NOT USE THIS PRODUCT IN LIFE SUPPORT SYSTEMS.

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Pin Description

The Z8 Encore! F0830 Series products are available in a variety of package styles and pin configurations. This chapter describes the signals and the pin configurations for each of the package styles. For information about the physical package specifications, see the <u>Packaging</u> chapter on page 199.

Available Packages

Table 3 lists the package styles that are available for each device in the Z8 Encore! F0830 Series product line.

Part Number	ADC	20-pin QFN	20-pin SOIC	20-pin SSOP	20-pin PDIP	28-pin QFN	28-pin SOIC	28-pin SSOP	28-pin PDIP
Z8F1232	Yes	Х	Х	Х	Х	Х	Х	Х	Х
Z8F1233	No	Х	Х	Х	Х	Х	Х	Х	Х
Z8F0830	Yes	Х	Х	Х	Х	Х	Х	Х	Х
Z8F0831	No	Х	Х	Х	Х	Х	Х	Х	Х
Z8F0430	Yes	Х	Х	Х	Х	Х	Х	Х	Х
Z8F0431	No	Х	Х	Х	Х	Х	Х	Х	Х
Z8F0230	Yes	Х	Х	Х	Х	Х	Х	Х	Х
Z8F0231	No	Х	Х	Х	Х	Х	Х	Х	Х
Z8F0130	Yes	Х	Х	Х	Х	Х	Х	Х	Х
Z8F0131	No	Х	Х	Х	Х	Х	Х	Х	Х

Table 3. Z8 Encore! F0830 Series Package Options

Pin Configurations

Figures 2 and 3 display the pin configurations of all of the packages available in the Z8 Encore! F0830 Series. See <u>Table 4</u> on page 11 for a description of the signals. Analog input alternate functions (ANAx) are not available on the following devices:

- Z8F0831
- Z8F0431
- Z8F0131
- Z8F0231
- Z8F1233

Z8 Encore![®] F0830 Series Product Specification

Internal Precision Oscillator

The Internal Precision Oscillator (IPO) is designed for use without external components. The user can either manually trim the oscillator for a nonstandard frequency or use the automatic factory-trimmed version to achieve a 5.53 MHz frequency with $\pm 4\%$ accuracy and 45%~55% duty cycle over the operating temperature and supply voltage of the device. The maximum start-up time of the IPO is 25µs. IPO features include:

- On-chip RC oscillator that does not require external components
- Output frequency of either 5.53 MHz or 32.8kHz (contains both a FAST and a SLOW mode)
- Trimming possible through Flash option bits, with user override
- Elimination of crystals or ceramic resonators in applications where high timing accuracy is not required

Operation

The internal oscillator is an RC relaxation oscillator with a minimized sensitivity to power supply variations. By using ratio-tracking thresholds, the effect of power supply voltage is cancelled out. The dominant source of oscillator error is the absolute variance of chip-level fabricated components, such as capacitors. An 8-bit trimming register, incorporated into the design, compensates for absolute variation of oscillator frequency. Once trimmed, the oscillator frequency is stable and does not require subsequent calibration. Trimming was performed during manufacturing and is not necessary for the user to repeat unless a frequency other than 5.53 MHz (FAST mode) or 32.8 kHz (SLOW mode) is required.

Note: The user can power down the IPO block for minimum system power.

By default, the oscillator is configured through the Flash option bits. However, the user code can override these trim values, as described in the <u>Trim Bit Address Space</u> section on page 129

Select one of two frequencies for the oscillator: 5.53 MHz or 32.8 kHz, using the OSCSEL bits described in the <u>Oscillator Control</u> chapter on page 151.

Packaging

Zilog's F0830 Series of MCUs includes the Z8F0130, Z8F0131, Z8F0230, Z8F0231, Z8F1232 and Z8F1233 devices, which are available in the following packages:

- 20-Pin Quad Flat No-Lead Package (QFN)
- 20-pin Small Outline Integrated Circuit Package (SOIC)
- 20-pin Plastic Dual-Inline Package (PDIP)
- 20-pin Small Shrink Outline Package (SSOP)
- 28-Pin Quad Flat No-Lead Package (QFN)
- 28-pin Small Outline Integrated Circuit Package (SOIC)
- 28-pin Plastic Dual-Inline Package (PDIP)
- 28-pin Small Shrink Outline Package (SSOP)

Current diagrams for each of these packages are published in Zilog's <u>Packaging Product</u> <u>Specification (PS0072)</u>, which is available free for download from the Zilog website.

Hex Address: F83

Table 153. LED Drive Level High Register (LEDLVLH)

Bit	7	6	5	4	3	2	1	0		
Field		LEDLVLH[7:0]								
RESET	0	0	0	0	0	0	0	0		
R/W	R/W R/W R/W R/W R/W R/W R/W									
Address	F83H									

Hex Address: F84

Table 154. LED Drive Level Low Register (LEDLVLL)

Bit	7	6	5	4	3	2	1	0
Field	LEDLVLL[7:0]							
RESET	0	0	0	0	0	0	0	0
R/W	R/W R/W R/W R/W R/W R/W R/W							
Address	F84H							

Hex Address: F85

This address range is reserved.

Oscillator Control

For more information about the Oscillator Control registers, see the <u>Oscillator Control</u> <u>Register Definitions</u> section on page 154.

Hex Address: F86

Table 155.	Oscillator	Control	Register	(OSCCTL	.)
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Bit	7	6	5	4	3	2	1	0
Field	INTEN	XTLEN	WDTEN	POFEN	WDFEN	SCKSEL		
RESET	1	0	1	0	0	0	0	0
R/W	R/W	R/W	R/W	R/W	R/W	R/W	R/W	R/W
Address	F86H							

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