

Motor Control Solutions

Z8 Encore! MC™ 8-bit Microcontrollers



LARGE APPLIANCES



Z8FMC16100 Series MCU

MOTOR TYPES COMMONLY USED

- Universal
- AC Induction
- Brushless DC (BLDC)
- Switch Reluctance

FEATURES THAT SEPARATE US FROM THE REST

- 8-channel 2.5 μ s A/D Converter allows accurate current and back EMF sensing
- Time stamp on ADC sampling for accurate back EMF zero crossing
- Op-amp with external gain settings for current sensing amplification
- Comparator with programmable shutdown for over-current protection
- 3-phase PWM module optimized for motor control
- UART with LIN, SPI, I²C, communication peripherals
- 4% Internal Precision Oscillator

THE Z8 ENCORE! MC™

During the last century, appliances have become an essential part of our lives. While cost savings have been a big focus during this period of time, today's consumers are more interested in the added value an appliance brings to its daily use. ZiLOG's feature-rich Z8 Encore! MC™ microcontrollers enable today's appliance design engineers to add many new differentiating features and meet the new market requirements. Combined with our easy-to-use development tools, reference designs, and software libraries, the Z8 Encore! MC™ microcontrollers help you to get to market faster than the competition.

DESIGN CHALLENGES

Energy Efficiency

Our 2 μ s ADC with time stamp is tied to the PWM module and allows you more accurate control of the motor at lower or variable speeds to reduce power consumption.

Design Robustness

In appliance designs, motor noise can interfere with the MCU's operation. With our IPO and noise robustness, the Z8 Encore! MC™ MCU can operate even in the worst of conditions.

Differentiating Features

Microcontroller based design allows for ability to add more complex and differentiating features. With 16K of Flash and 17 GPIO you are able to add many bells and whistles to differentiate your product.

Quiet Operation

Keep your appliance system's audible noise low by using the soft start feature and ability to adjust the speed of the motor by using our advanced analog motor control features.

Communication

Use the advantage of integrated multiple communication peripherals for complete system level communication.

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BLOCK DIAGRAM

12-bit PWM Module for Motor Control	16-bit Timer Capture Capture/Compare/PWM	Operational Amplifier with dedicated sample and hold
SPI, I ² C and UART with LIN	20MHz eZ8 CPU	8 Channel 10-bit ADC
Up to 512B RAM	Up to 16KB Flash	POR/VBO and Reset Control
Watch-Dog Timer	Debugger	Internal Precision Oscillator
Comparator	Interrupt Controller	
Up to 17 General-Purpose I/O Pins		

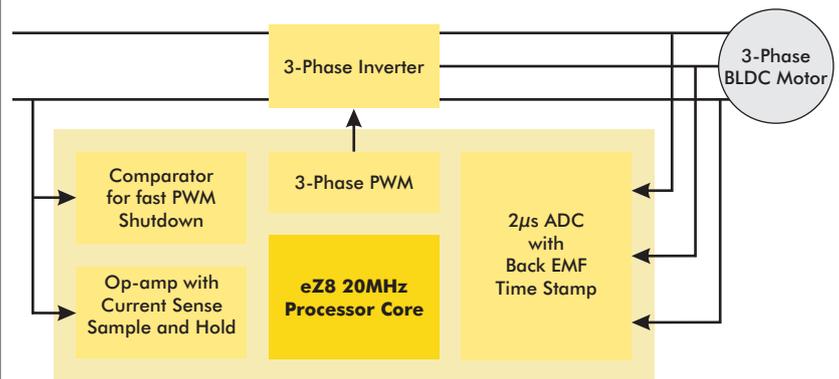
MCU FEATURES

- 20MHz CPU core
- Up to 16KB Flash memory
- Up to 512B RAM
- 6-channels of 12-bit PWM with fast shutdown
- 8-channel 2 μ s 10-bit ADC with internal reference
- Operational amplifier
- Analog comparator
- Internal Precision Oscillator
- UART with LIN, SPI, I²C
- One 16-bit timer
- Single-pin debug
- Watch Dog Timer (WDT), Voltage Brown Out (VBO),
- Power On Reset (POR)
- 32-pin QFN or LQFP
- 2.7-3.6V operation
- Standard (0° to 70°C) and extended (-40° to 105°C) temperature range (125° available upon special request)

REFERENCE TOOLS

- Software libraries
- Reference designs
- Application notes

SYSTEM DIAGRAM



DEVELOPMENT TOOLS INFORMATION

Z8 Encore! MC™ Z8FMC16100 Series MCU Development Kit

is the low cost motor control development tool which contains everything you need to evaluate and design your next motor control project. Includes:

- Brushless DC application board
- Z8FMC16100 series MCU development board
- Opto-isolated USB debugging and programming cable
- ZDS II Integrated Development Environment (IDE) with a full ANSI C compiler

Z8 Encore! MC™ Z8FMC16100 Series MCU In-Circuit Emulator Kit

is recommended for more advanced development with trace and event system.

FOR MORE INFORMATION

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