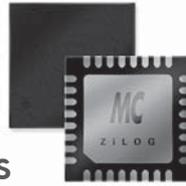


Motor Control Solutions

Z8 Encore! MC™ 8-bit Microcontrollers



SMALL APPLIANCES



Z8FMC16100 Series MCU

MOTOR TYPES COMMONLY USED

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

FEATURES THAT SEPARATE US FROM THE REST

- 8-channel $2\mu\text{s}$ 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
- 4% Internal Precision Oscillator

THE Z8 ENCORE! MC

You've set your goals high and your challenge is to bring the best looking small appliance to the market fast without compromising its low cost. Today's consumers expect the best and we help you to give them the best with our Z8 Encore! MC™ family of motor control microcontrollers. We've integrated more features on-chip, thought about the small appliance size, and created a microcontroller that is power efficient and robust enough to be used in harsh environments. Now you are able to add more differentiating features with ease and get your design to market faster at low cost, and these are all the goals that we have set for ourselves.

DESIGN CHALLENGES

Low System Cost

Highly integrated microcontroller features, such as the op-amp and comparator, give you the ability to reduce your overall system cost.

Small Size

Our MCU's feature rich performance is compacted into a 32-pin QFN package requiring only 5x5mm of your PCB space.

Design Robustness

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

Power Consumption

Our $2\mu\text{s}$ 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.

Fast Time-to-Market

ZiLOG provides a complete solution for your small appliance motor control design backed by reference designs, software libraries, and application notes to speed you through the design process.

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SMALL APPLIANCES

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BLOCK DIAGRAM

12-bit PWM Module for Motor Control	16-bit Time Capture Capture/Compare /PWM	Operational Amplifier with dedicated sample and hold
SPI, I2C 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		

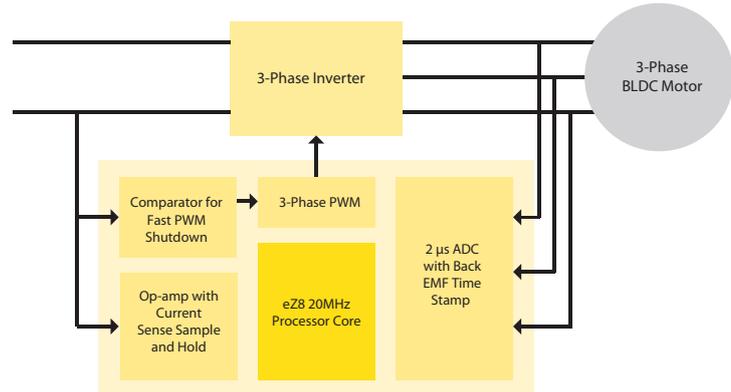
MCU FEATURES

- 20MHz CPU core
- Up to 16KB Flash memory
- Up to 512B RAM
- 6-channels of 12-bit PWM with fast shut down
- 8-channel 2µs 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:

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