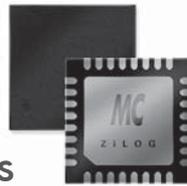


Motor Control Solutions

Z8 Encore! MC™ 8-bit Microcontrollers



POWER TOOLS



Z8FMC16100 Series MCU

MOTOR TYPES COMMONLY USED

- Brushless DC (BLDC)
- Universal
- AC Induction

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

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.

Safe Operation

With Z8 Encore! MC microcontroller's over-current sense feature, you can incorporate fast shutdown of the motor for anti-kick back or stall detection.

Differentiating Features

With 16K of Flash and 17 GPIO you are able to add many bells and whistles to differentiate your product.

THE Z8 ENCORE! MC

The world wide demand for power tools continues to grow with the accelerating economic activity and improving living standards. Do-It-Yourself and professional markets are demanding more features at lower costs. To help you keep up with these demands, ZiLOG has created a line of microcontrollers dedicated to motor control of devices such as power tools. Our Z8 Encore! MC™ microcontrollers incorporate many features on-chip to help you reduce overall system cost while adding more functionality to your design. For example, our comparator is tied to the PWM module and allows fast overcurrent protection when a power tool's motor suddenly stops, improving the safety of your product. With our easy to use development tools and supporting reference designs and application notes, you can now beat your competition and get to market faster.

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POWER TOOLS

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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		

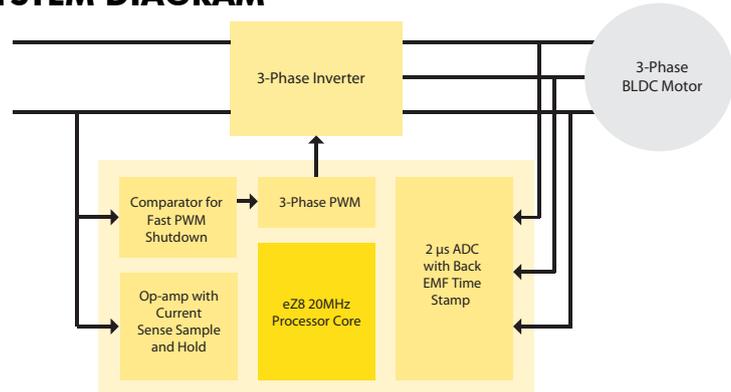
MCU FEATURES

- 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:

- 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