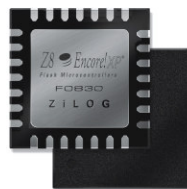


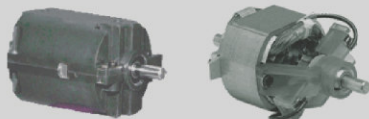
Motor Control Solutions

Z8 Encore![®] Family 8-Bit Microcontrollers



zilog[®]

Universal Motor



F0830 Series MCU

MOTOR TYPES COMMONLY USED

- Small Appliances
- Washers and Dryers
- Vacuum Cleaners
- Power Tools
- Fluid Pumps
- Fans

FEATURES THAT SEPARATE US FROM THE REST

- 8-channel 11.9 μ s A/D Converter allows accurate current and back EMF sensing
- ADC sampling for accurate back EMF zero crossing
- Comparator with programmable shutdown for over-current protection
- Two 16-bit PWM modules optimized for motor control
- Internal Precision Oscillator with $\pm 4\%$ accuracy over the full voltage/temp ranges

THE Z8 ENCORE![®] FAMILY

Universal Motors can be driven by either AC or DC current, thus name Universal. They provide the best power-to-weight ratio in the market and is most suited for variable and high-speed applications. Recently, rising component prices due to technology developments and strong competitions have made universal motors readily available for a variety of applications. Vacuum cleaners often depend on universal motors for their high speed as it provides better suction and cooling of the motor. Universal motors are typically customized to meet customer's specifications. Combine with the advanced motor control features of our Z8 Encore![®] microcontroller and easy-to-use development tools, and you have a winning universal motor control solution.

BLOCK DIAGRAM

Up to 12 KB Flash	256 B RAM	Up to 8 Channels 10-bit ADC
Two 16-bit Timers/PWM	20 MHz eZ8[™] CPU	POR/VBO & Reset Control
Up to 64 B NVDS	On-Chip Debugger	Crystal/RC Oscillator
Watchdog Timer with RC Oscillator	Analog Comparator	Internal Precision Oscillator
17 to 25 General-Purpose I/O Pins		

OVERCOMING DESIGN CHALLENGES

High Speed

Our fast ADC and 20 MHz CPU core process the voltage, current, and user inputs for the control of universal motors. At 11.9 μ s for 10-bit conversion, Zilog's ADC is best-in-class!

Adjustable Speed Regulation

Integrated PWM and comparator provides effective tools to determine the motor current and provide AC line phase control.

Energy Efficiency

Our 11.9 μ s ADC with time stamp is tied to the PWM module and allows more accurate control of the motor at lower or variable speeds to reduce power consumption.

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.

Lower Noise

In many applications, noise can interfere with the MCU's operation. With Zilog's IPO and noise filters, MCUs will operate even in worst conditions.

Compact Size

Our MCU's feature-rich performance is compacted into a 20-pin or 28-pin QFN package requiring only 5x5mm² of your PCB space. We also integrated several external components, such as a comparator, that will save valuable real estate on your PCB board.

System Cost

Highly integrated microcontroller features such as the IPO, NVDS, and comparator give you the ability to reduce your average system cost.

www.zilog.com

Motor Control Solution

Z8 Encore![®] Family 8-Bit Microcontrollers



UNIVERSAL MOTORS

F0830 Series MCU



MCU FEATURES

- 20 MHz eZ8[™] CPU core
- Up to 12 KB Flash memory with in-circuit programming capability
- Up to 256 B of register RAM
- Up to 64 B of Non-Volatile Data Storage (on 8 KB devices and below)
- Up to eight channels 10-bit Analog-to-Digital Converter (ADC)
- On-chip analog comparator
- Two 16-bit timers with Capture, Compare, and PWM capabilities
- Watchdog Timer (WDT) with internal RC oscillator
- 17 to 25 I/O pins depending upon package
- Up to 18 interrupts with configurable priority
- On-Chip Debugger (OCD)
- Voltage Brownout protection (VBO)
- Power-on Reset (POR)
- Internal Precision Oscillator (5.53 MHz/32 kHz) with $\pm 4\%$ accuracy over full voltage/temperature range
- Crystal oscillator with three power settings and external RC network option
- 2.7 V to 3.6 V operating voltage with 5 V-tolerant digital inputs
- 20- and 28-pin packages
- 0 °C to +70 °C (extended temperature) and -40 °C to +105 °C (extended temperature) operating ranges

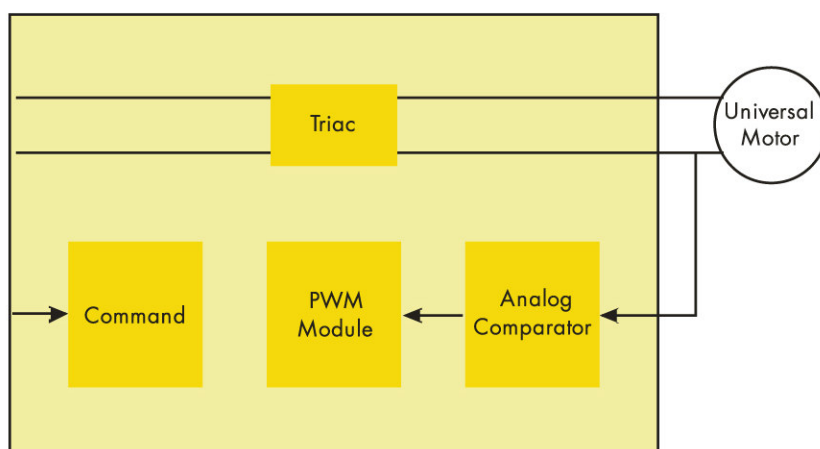
REFERENCE TOOLS

- Reference Designs
- Application Notes

Affordable and Efficient Tools

Zilog has always invested in making robust, yet affordable design tools that are easy to use. This product is supported by our free C-Compiler and ZDS II environment. You can start development with the F0830 with many options including our USB cable or our opto-isolated USB cable. whenever option you choose, Zilog offers the right tools to get your application up-and-running fast!

SYSTEM DIAGRAM



DEVELOPMENT TOOL ORDERING INFORMATION

ZUSBSC00100ZACG : USB Smart Cable Accessory Kit
ZUSBOPTSC01ZACG : Opto-Isolated USB Smart Cable Accessory Kit

FOR MORE INFORMATION

Visit us at www.zilog.com