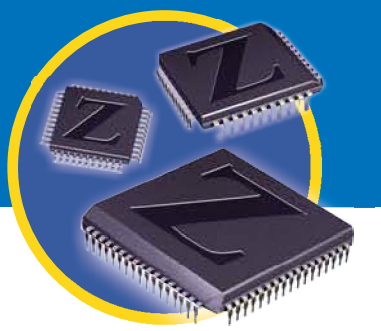


eZ80® Acclaim!
Flash Microcontrollers

Real-Time ZiLOG Kernel

Features

- Fast Context Switching
- Small Footprint
- Modular Design
- Compile-Time Configurable
- Manages Interrupts
- Threads with Up to 32 Priority Levels
- Inter-Thread Communication Options
- Software Timers
- Memory Management
- Priority Inheritance Support

Supported eZ80Acclaim!® Devices:

Part	Description
eZ80F91	256KB Flash, 50 MHz MCU
eZ80F92	128KB Flash, 20 MHz MCU
eZ80F93	64KB Flash, 20 MHz MCU

ZiLOG's RZK is a preemptive, multitasking, real-time kernel that manages the use of the CPU to ensure that all time-critical tasks are processed efficiently. Scalable and modular in design, the RZK real-time kernel provides an extensive feature set and easy-to-use APIs. It helps you get your product to market faster and increases reliability because it provides pre-built object modules that simplify the design process. Its modular design eliminates the need to redesign or reengineer common features.

Fast Context Switching – Time taken to switch context between two threads is 12.5μs (measured on eZ80F91 running from RAM with one wait state).

Small Footprint – Basic kernel and thread occupies only 8K of ROM (full version occupies 18K). Minimum RAM required is 1K.

Modular Design – Specify only the objects required by the application. Each Object is a library, and only the objects used in the application are included in the final image. Memory is allocated at the time an Object is invoked.

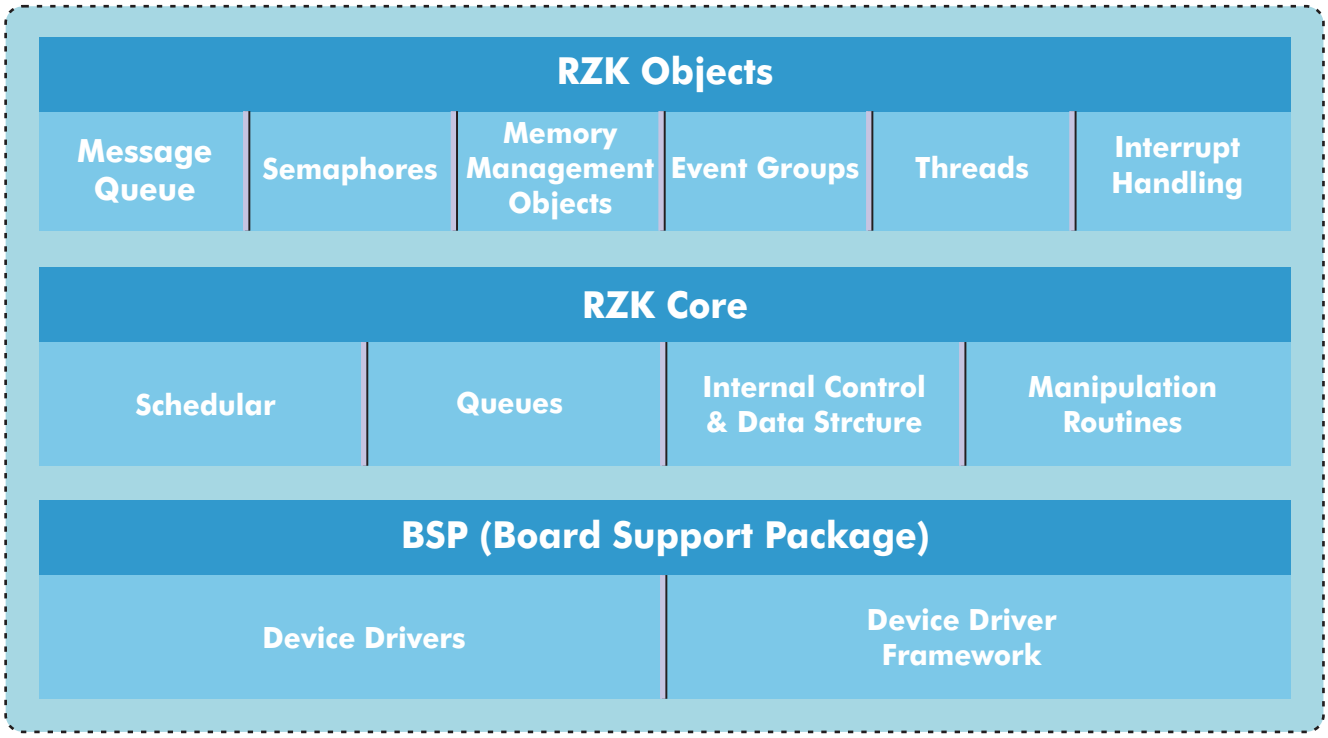
Compile-Time Configurable – System parameters such as threads and semaphores can be specified at compile time. Debug support and priority inheritances can be enabled or disabled at compile time.

Threads with Up to 32 Priority Levels – Provides preemptive and non-preemptive threads. Threads can either preempt based on priority or share the CPU cooperatively among equal-priority threads. Thread priority can be changed at run time.

Inter-Thread Communication Options – Offers options for inter-thread communications and synchronization.

ZiLOG™

eZ80Acclaim!® Real-Time Zilog Kernel Functional Architecture



Software Timers – Provides software timers for use in running periodic tasks. The RZK system tick enables RZK threads to run the software timer, perform timed blocks on resources, and support clock functions.

Memory Management – Provides fixed-size memory pools that are ideal for the deterministic memory allocation required by time-critical applications. It also supports variable-size memory allocation with finite and infinite blocking.

Priority Inheritance Support – Solves the priority inversion problem in binary Semaphore by supporting priority inheritance for both unbounded and bounded priority inversion.

The RZK kernel is supplied as a C library module with required source and header files. It is compatible with ZDSII, ZiLOG's Integrated Development Environment that provides compiling, debugging, and project-building tools for quick and efficient embedded application development. Sample applications that demonstrate the use and functions of the RZK object libraries are included.

Ordering Information

Part Number	Description
EZ800000100KRO	ZiLOG Real-Time Kernel Object Code
EZ800000100KRS	ZiLOG Real-Time Kernel Source Code

The object code package is available as a free download from http://www.zilog.com. Source code is available and comes with six months of free technical support and free upgrades.