



## ZGATE™ Embedded Security Product Brief

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### Zilog's ZGATE™ Embedded Security

#### ZGATE™ ADVANTAGES

- Easily add secure Ethernet capability to your products
- Easy implementation for complicated network stacks
- Zilog full-featured TCP/IP Software Suite
- Embedded firewall with easily configured filtering rules
- Zilog's continuing commitment to supporting our customers

#### KEY FEATURES

- 50 MHz high-performance eZ80® CPU with Ethernet Media Access Control (EMAC)
- 256KB Flash Program Memory with 16KB high-speed SRAM (including 8K for EMAC)
- 32 GPIO ports
- External memory interface
- Supports multiple network protocols
- Includes multiple servers/clients
- Real-Time Operating System (RTOS)
- Easily configured filtering rules
- Extremely low firewall latency
- Lockdown mode
- API for event logging

#### Overview

Zilog introduces ZGATE™ Embedded Security, which combines multiple world-class technologies for safer, faster and better deployment of your embedded communication applications. Incorporating the eZ80F91 MCU and Zilog's full-featured TCP/IP stack with a world-class embedded firewall produces technology that provides the tools to design, build and bring your communication product to market.

The eZ80F91 MCU is the industry's first MCU featuring a high-performance 8-bit microcontroller with an integrated 10/100 BaseT EMAC. It is a power-efficient, optimized pipeline architecture microcontroller with a maximum operating speed of 50 MHz. Offering on-chip Flash Memory, SRAM, Ethernet MAC, and rich peripherals, the eZ80F91 is well-suited for industrial, communication, automation, security, and embedded Internet applications.

#### ZGATE™ Firewall Features

- Ethernet, IP/UDP/TCP/ICMP filtering
- Extremely low latency; tests show improved network throughput under load by blocking packets earlier
- API for event logging
- Easily-configurable filtering rules:
  - Static/rules-based filtering blocks packets based on configurable rules
  - Dynamic filtering/stateful packet inspection (SPI) blocks packets based on connection state
  - Choose your firewall package based on application requirements – see table below

Firewall Features	Firewall Package		
	Standard	Extended	Premium*
Static filtering	Yes	Yes	Yes
Stateful packet inspection	Yes	Yes	Yes
Port, protocol and address limits	15 ports, 10 protocols, 10 IP addresses & 10 MAC addresses	100 ports, 100 protocols, 100 IP addresses & 100 MAC addresses	100 ports, 100 protocols, 100 IP addresses & 100 MAC addresses
Threshold-based filtering	No	No	Yes

\*The ZGATE Embedded Security Development Kit (ZGATE000100ZCOG) ships with the Premium firewall package.

## APPLICATIONS

- Embedded webservers
- Wireless solar power monitoring
- Smart meters
- Home automation

## Zilog Full-Featured TCP/IP Software Suite Features

- Provides a critical layer of security for networked devices
- Supports the following TCP/IP protocols:
  - IPv4, TCP, UDP, ARP and RARP
  - ICMP, IGMP and DHCP/BOOTP
- HTTP/HTTPS server, TFTP client, SNMP agent, TELNET server and client, SMTP client, DNS client, TimeP client and Sntp client
- FTP server and client, plus an embedded Flash file system that works within the Flash and static RAM memories
- Local or remote run-time debugging operating system command shell
- RTOS (RZK)

## eZ80F91 MCU Features

- 50 MHz high-performance eZ80® CPU
- 256 KB Flash Program Memory and extra
- 512 B device configuration Flash Memory
- 32 General-Purpose Input/Output (GPIO)
- 16 KB total on-chip high-speed SRAM:
  - 8 KB for general-purpose use
  - 8 KB for 10/100 BaseT Ethernet Media Access Controller (EMAC) high-speed frame buffer
- IrDA-compatible infrared encoder/decoder
- Two universal asynchronous receiver/transmitter (UARTs) with independent baud rate generators
- Inter-integrated circuit (I<sup>2</sup>C) and serial peripheral interface (SPI) with independent clock rate generator
- Four counter/timers with prescalers supporting event counting, input capture, output compare and Pulse Width Modulator (PWM) modes
- Watchdog Timer (WDT) with internal RC clocking option
- Real time clock (RTC) with on-chip 32 KHz oscillator, selectable 50/60 Hz input, and separate RTC\_VDD pin for battery backup
- Glueless external memory interface with 4 Chip-Selects/Wait-State Generators and external WAIT input pin. It also supports Intel® and Motorola® buses
- JTAG and Zilog Debug Interface (ZDI) supporting emulation features
- Low-power PLL and on-chip oscillator
- Programmable-priority vectored interrupts, nonmaskable interrupts, and interrupt controller
- New DMA-like eZ80® CPU instructions
- Power management features supporting HALT/SLEEP modes and selective peripheral power-down controls
- 144-pin LQFP package
- 3.0 V to 3.6 V supply voltage with 5V-tolerant inputs

### Ordering Information

ZGATE™ parts are offered in the following packages. Construct your part number based on the specific package you wish to order.

Part Number	Firewall Package	Flash	SRAM	Temperature	Package
EZ80F91GAZOAEG	Premium	256 KB	16 KB	-40°C to 105°C	144-pin LQFP
EZ80F91GAZOBEG	Extended	256 KB	16 KB	-40°C to 105°C	144-pin LQFP
EZ80F91GAZOCEG	Standard	256 KB	16 KB	-40°C to 105°C	144-pin LQFP
ZGATE000100ZCOG	ZGATE Embedded Security Development Kit				

Order ZGATE™ parts separately using part numbers from the above table.

For more information about Zilog's ZGATE™ embedded firewall technology, ordering or product collateral, please consult your local Zilog distributor or representative. You can find sales office locations and the most current product information on our website; please visit us at [www.zilog.com](http://www.zilog.com).



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