

# MC13193 Evaluation Kit

### Overview

The 13193-EVK is Freescale Semiconductor's latest addition of hardware tools for the ZigBee™-compliant platform. The 13193-EVK builds on the success of the 13192 Developer's Starter Kit (13192DSK-A00), by adding full ZigBee capabilities for demonstration and development. This scalable solution provides wireless network functionality from simple proprietary applications through robust ZigBee applications. The kit contains all the necessary hardware and software to demonstrate and develop solutions based on Freescale's MC13191 and Simple MAC software for proprietary applications, the MC13192 for IEEE® 802.15.4 compliant applications and the MC13193 for ZigBee-compliant applications. Users can demonstrate and develop wireless solutions that support simple point-to-point, star and complex mesh networks.

### Hardware

The 13193-EVK contains two Sensor Application Reference (SARD) boards as well as three evaluation boards (EVB). The SARD board includes the MC13192 2.4GHz transceiver, MC9S09GT60 microcontroller unit (MCU), MMA1260D 1.5G X-Y-axis and MMA6261Q 1.5g Z-axis acceleration sensors. The EVB is based on the MC13192 and the MC9S08GT60 MCU and provides added flexibility through a single-ended printed antenna and an

optional Low Noise Amplifier (LNA), enabling reference designs that are small in size and have increased sensitivity.

### Software

The 13193-EVK provides the necessary software protocol stacks and sample applications to design a variety of 2.4GHz networking solutions. The Simple Media Access Control (SMAC) supports the MC13191 and MC13192. It provides sample applications and source code to help develop simple and inexpensive wireless solutions based on point-to-point and star networks. Additionally, Freescale offers an 802.15.4 compliant MAC and PHY for the MC13192 and MC13193. The 802.15.4 PHY/MAC gives developers the building blocks to create more complex networking topologies supporting peer-to-peer, simple star and mesh applications. The included Test Tool application provides developers with a GUI interface to demonstrate and design 802.15.4 functionality. Finally, included in the kit is a comprehensive ZigBee protocol stack (Z-Stack), software tools and sample applications allow users to demonstrate a comprehensive ZigBee mesh network for solutions based on the MC13193. The Z-Stack includes a free 90-day evaluation license. This allows developers to demonstrate ZigBee solutions without the up front expense of a full software license.

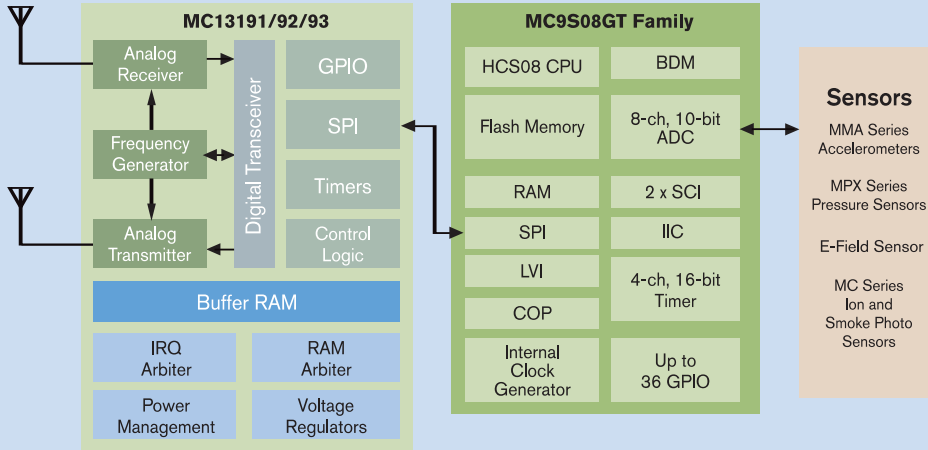


### Evaluation Kit Features

- > Five 2.4GHz wireless nodes based on the Freescale ZigBee-compliant platform
- > Provides reference designs from IC to antenna
- > Onboard BDM port for MCU flash reprogramming and in-circuit hardware debugging
- > RS-232 port for monitoring and Flash programming
- > LEDs and switches for demonstration, monitoring and control
- > Connections for 9-Volt battery or external power supply (included in kit)
- > SMAC, 802.15.4 and ZigBee compatible
- > Includes Metrowerks CodeWarrior Development Studio for HCS08
- > ZigBee protocol stack, sample applications and utilities

**FREESCALE'S ZIGBEE™-COMPLIANT PLATFORM SOLUTION**

**EXAMPLE BLOCK DIAGRAM FOR A SENSOR APPLICATION**



**Benefits**

- > Fully integrated Freescale platform offers a one-stop shop for your silicon needs
- > Self-contained, cost-effective wireless development platform helps reduce prototyping costs
- > The MC13191/92/93 2.4 GHz platform solution can be used worldwide, eliminating the need to redesign and certify a product for various markets or regions
- > Reusable hardware—MCU can be reprogrammed and debugged for custom application development
- > Header pins on boards offer interface to easily connect application-specific hardware
- > Scalable software support for easy development of customer-specific network topologies

**PRODUCT DOCUMENTATION**

Description:	Order Number:
<b>MC13191/92/93 Reference Manuals</b> <i>Details of the architecture and command interface</i>	MC13191RM MC13192RM (for MC13192 and MC13193)
<b>MC13191/92/93 Data Sheets</b> <i>Electrical and timing specifications, package and pin descriptions</i>	MC13191 MC13192 (for MC13192 and MC13193)
<b>MC13191/92/93 Fact Sheets</b> <i>Product overview</i>	MC13191FS MC13192FS MC13193FS

**ORDERING INFORMATION**

Description:	Order Number:
<b>MC13193 Evaluation Kit</b>	13193EVK-A00
<b>Z-Stack Software</b>	F8-Zstack-Std

**Learn More:** For more information about Freescale products, please visit [www.freescale.com/zigbee](http://www.freescale.com/zigbee)

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