

# 1319x Developer's Starter Kit

### Overview

Freescale Semiconductor's 1319x Developer's Starter Kit is a cost-effective, reusable development kit used to implement wireless network designs compatible with the IEEE® 802.15.4 standard. The kit contains all the hardware, software and documentation necessary to create proprietary and standards-based peer-to-peer and star networks.

The development kit contains two Sensor Application Reference Design (SARD) boards that utilize Freescale's 1319x 2.4 GHz transceiver, MC9S08GT60 microcontroller unit, and MMA6261Q 1.5g X-Y-axis and MMA1260D 1.5g Z-axis accelerometers. The boards can either be powered by a 9-volt battery or by an external power supply (both included). Also included in the development kit are Freescale's IEEE 802.15.4 media access controller (MAC) and example Simple MAC (SMAC) software. The SMAC software, which is available as source code and can be targeted to any processor, allows for development of non-standards-based proprietary point-to-point and star networks. The IEEE 802.15.4 MAC software allows for standards-based peer-to-peer and star

network topologies. The boards come programmed with a wireless accelerometer demonstration based on the SMAC software and can be reprogrammed through the serial port, or by using a USB MULTILINK debugger/programmer.

Freescale's ZigBee™-compliant family of 2.4 GHz transceivers offers development of cost-effective, low-power and low-data-rate RF connectivity solutions. The 1319x allows for development of simple proprietary point-to-point and networks. The MC13192 supports proprietary development of standards-based IEEE 802.15.4 network topologies. The MC13193 is our ZigBee RF transceiver and allows for the development of sophisticated ZigBee mesh networks.

Freescale's 1319x family of transceivers offers affordable wireless connectivity for battery-powered monitor and control applications, such as home and industrial automation, industrial control and personal health care.

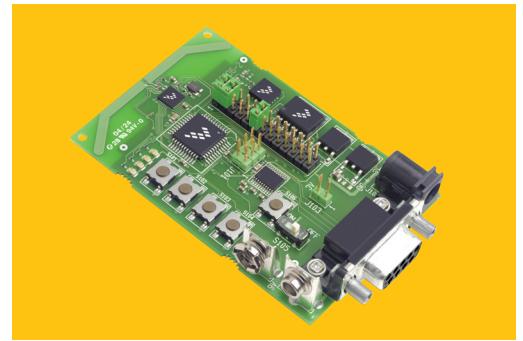
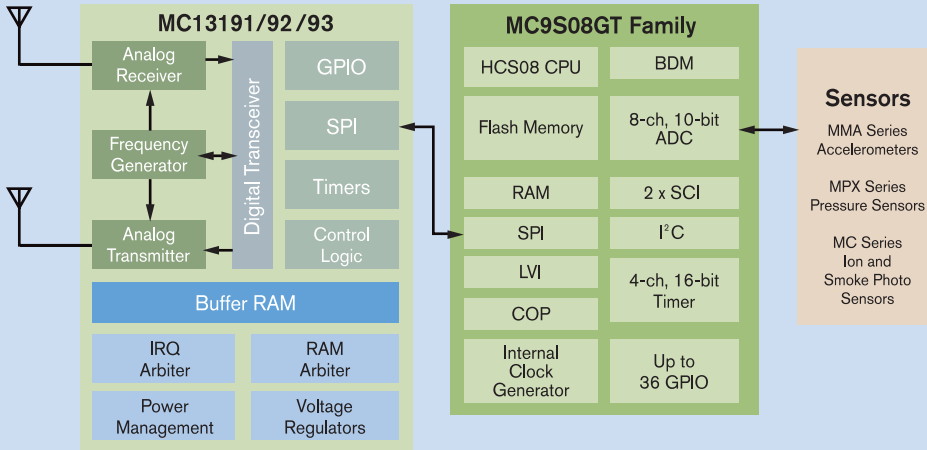
Freescale combines the development board, CodeWarrior™ Development Studio and preprogrammed sample applications to create a comprehensive, scalable solution for easy, fast and efficient wireless network development.

### Developer's Starter Kit Features

- > Two 2.4 GHz wireless nodes compatible with the IEEE 802.15.4 standard
  - MC13192 2.4 GHz RF data modem
  - MC9S08GT60 low-voltage, low-power 8-bit MCU for baseband operations
  - Integrated MMA6261Q 1.5g X-Y-axis and MMA1260D 1.5g Z-axis accelerometers
  - Printed transmit-and-receive antennae
  - Onboard expansion capabilities for external application-specific development activities
  - Onboard background debug module (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
- > Hardware supports Freescale's IEEE 802.15.4 MAC and example SMAC software
- > Preprogrammed accelerometer demonstration and additional downloadable sample applications
- > Metrowerks' CodeWarrior™ Development Studio for HCS08 MCUs
- > USB MULTILINK BDM Debugger/Programmer (included with the 13192DSK-BDM only)

## FREESCALE'S ZIGBEE™-COMPLIANT PLATFORM SOLUTION

### EXAMPLE BLOCK DIAGRAM FOR A SENSOR APPLICATION



### Benefits

- > 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 offer interface to easily connect application-specific hardware
- > Scalable software support for easy development of customer-specific network topologies
- > Fully integrated Freescale platform offers a one-stop shop for your silicon needs

### PRODUCT DOCUMENTATION

MC13191/92/93 Reference Manuals	Detailed description for the MC13191, MC13192 and MC13193 architecture and command interface Order Number: MC13191RM MC13192RM (MC13192 and MC13193)
MC13191/92/93 Data Sheets	Electrical and timing specifications, package and pin descriptions Order Number: MC13191DS MC13192DS (MC13192 and MC13193)
MC13191/92/93 Fact Sheets	Product overview Order Number: MC13191FS MC13192FS MC13193FS

### ORDERING INFORMATION

- 1319x Developer's Starter Kit without USB MULTILINK Programming Cable 13192DSK-A00
- 1319x Developer's Starter Kit with USB MULTILINK Programming Cable 13192DSK-BDM-A00

**Learn More:** For more information about Freescale's ZigBee Family portfolio, please visit [www.freescale.com/ZigBee](http://www.freescale.com/ZigBee).