



IEEE® 802.15.4 and ZigBee™ Development Kit Fact Sheet

Wireless Connectivity with Flexis™ Microcontroller

Overview

Designers of extended wireless networks have consistently expressed a need for a microcontroller with more memory, 128Kb of Flash memory. That solution is now available in the 1320x-QE128-EVB, an evaluation board for developing IEEE® 802.15.4 software applications ranging from simple proprietary point-to-point connectivity to complete ZigBee mesh networking on the Freescale HCS08QE microcontroller platform. The Freescale QE MCU family is unique in that the user can use an 8-bit CPU or a 32-bit CPU in a pin-compatible package and also retain the same peripheral and IO set.

The 1320x-QE128EVB evaluation board is based on the Freescale MC1320x transceiver and MC9S08QE128 microcontroller unit (which is supplied as a daughter card). The 1320x-QE128EVB provides a platform to evaluate the MC1320x and MC9S08QE devices, develop software, and applications, and demonstrate the IEEE 802.15.4 and ZigBee networking capabilities. The evaluation board is supported by Freescale's BeeKit software design environment for IEEE 802.15.4 and ZigBee applications.

The 1320x-QE128-EVB



Markets and Applications

- Energy management and efficiency
- Automated energy/utility metering
 - Demand response
 - Load control

Home/Building/Industrial automation, monitoring, and control

- Lighting
- Heating
- Cooling
- Consumer electronics control
- Security
- Process management
- Asset management
- Critical equipment monitor
- Patient monitoring
- Energy management

Features

The 1320x-QE128EVb provides the following features:

- MC9S08QE128 MCU daughter card— supports the S08-based version of the QE128
- Full IEEE 802.15.4 compliant wireless node and is ZigBee capable with Freescale's BeeStack software stack
- Freescale MC13202 transceiver in RF single-port mode
- Freescale MC9S08QE128 microcontroller unit
- USB interface that is bus-powered and full-speed compatible to USB 2.0 and 1.1 specifications
- Alternative RS-232/UART (DB-9) serial communications port
- User interfaces switches and LEDs
- Supports 2x16 character LCD
- External 1Mbit serial I2C EEPROM
- Audio resonator
- Standard QE128 BDM development port
- BeeKit software development environment
- Multiple system clock options
- MCU source derived from transceiver CLK0 (MC13202 transceiver requires 16 MHz crystal)
- Optional 32.768 kHz crystal oscillator for accurate real-time delays and lower power modes
- Power management circuit with on-board regulation for multiple power sources
- Can be powered from USB interface, DC power jack or two AA batteries
- ON/OFF power switch
- Power-on green LED
- MCU and transceiver RESET via ON/OFF switch (MCU does not support use of a hardware reset pin when used with the MC13202 transceiver)
- 16-pin and 10-in user headers for selected General Purpose Input Output signals (GPIO) and data interfaces
- All components meet RoHS and WEE requirements

Software Features

The 1320X-QE128-DSK and DSK-BDM are supported by Freescale's well known BeeKit, wireless connectivity design tool, and CodeWarrior®, microcontroller design tool, integrated design environments (IDE). The BeeKit provides a graphical user's interface (GUI) which allows straight forward wireless transceiver and network set-up. The BeeKit is a comprehensive wireless network development tool, making it easier than ever to create and update wireless networking implementations. The BeeKit solution provides designers a tool to reduce their RF investment in time and design resources. By quickly developing the wireless network, the engineer may focus their efforts on application development. BeeKit is a complimentary tool to CodeWarrior.

The BeeKit software development environment features the ability to:

- Create, modify, save and update wireless network solutions
- Develop using a wizard and solution explorer for quick and easy configuration of parameters
- Generate the appropriate workspace files to be imported into CodeWarrior with the comprehensive code base of networking libraries, application templates, and sample applications
- Prepare .xml files for use with CodeWarrior
- Support new code bases and functionality with this exceptional and scalable development tool
- Develop with the Simple MAC (SMAC) and IEEE® 802.15.4 MAC code bases with the unlimited use, complementary BeeKit license
- Access at no charge a 90-day evaluation of BeeStack® fully compliant ZigBee stack.
- Purchase a BeeStack ZigBee code base for full ZigBee stack development as a single user license or a floating license.

CodeWarrior Development Studio for Microcontrollers is a single, integrated tool suite to get customers on the fast track to application development with Freescale's QE128 microcontroller. By combining state-of-the art debugging technology with the simplicity of a robust development environment, CodeWarrior Development Studio takes source-level debugging and embedded application design to a new level.

The CodeWarrior software development environment features the ability to:

- Create a working project in as few as six mouse clicks with the Project Wizard
- Build systems with the optimized microcontroller compiler and embedded libraries to increase code density and performance
- Develop assembler for the QE128 microcontroller
- Utilize a graphical, source-level debugger
- Simulate instruction sets for the architecture
- Program flash through an integrated flash programmer
- Create new flash programming algorithms for external memory devices using the Flash Tool Kit
- Develop CPU and peripheral initialization code

Learn More: For more information about ZigBee products, please visit www.freescale.com/zigbee.