

Operational Description

The 1322x-LPB is an IEEE 802.15.4 compliant wireless node based on the Freescale MC1322x device. The heart of the MC1322x USB module is Freescale's MC1322x 99-pin LGA Platform-in-Package (PiP) solution that can be used for wireless applications ranging from simple proprietary point-to-point connectivity to complete ZigBee mesh networking. The MC1322x is designed to provide a highly integrated, total solution, with premier processing capabilities and very low power consumption. The 1322x-LPB provides a platform to evaluate the MC1322x device, develop software and applications, demonstrate IEEE 802.15.4 and ZigBee networking capabilities, and implement low power operation. The small form factor illustrates a small footprint, 2-layer printed circuit board (PCB) layout with integrated printed-wire F-antenna. The LPB provides a GPIO connector to interface with application devices, a separate second unbuffered UART connector, and a full JTAG debug port connector.

The 1322x-LPB provides the following features:

- Full IEEE 802.15.4 compliant wireless node; ZigBee capable with Freescale's BeeStack software stack
- Based on Freescale's third-generation MC1322x ZigBee platform which incorporates a complete, low power, 2.4 GHz radio frequency transceiver, 32-bit ARM7 core based MCU, hardware acceleration for both the IEEE 802.15.4 MAC and AES security, and a full set of MCU peripherals into a 99-pin LGA Platform-in-Package (PiP)
- MC1322x provides a highly integrated, low cost RF node
 - On-board balun and antenna switch in package
 - Typical -95 dBm sensitivity
 - Typical 0 dBm output power, with max approximately +4 dBm
 - F-antenna
- Standard JTAG debug/development interface connector
- Power management circuit with on-board regulation for multiple power sources
 - Can be powered from DC power jack, two AAA batteries, or optional Lithium coin cells
 - On/Off power switch
 - Optional header for measuring MC1322x current
 - Power-on green LED
- Supports optional use of buck converter
- User interface switches and LEDs
 - 2 push buttons for application purposes
 - 2 processor controlled red LEDs for application purposes
 - Header for hardware reset
- User interfaces include
 - 12-pin GPIO connector provides access to ADC inputs, unbuffered UART2 port, I2C port, and KBI pins (provide wake-up capabilities from low power)
 - 6-pin UART connector provides access to second unbuffered UART1 port
- System clock options
 - Default 24 MHz crystal reference oscillator. Supports use of PLL with non-default 13-26 MHz crystal.
 - Optional 32.768 kHz crystal oscillator for accurate real-time delays (crystal is mounted).
- Fixed 1.5 V reference for ADC VREFH during battery operation
- Separate switched VCC (via P-channel MOSFET) for power control of off-chip peripheral functions.