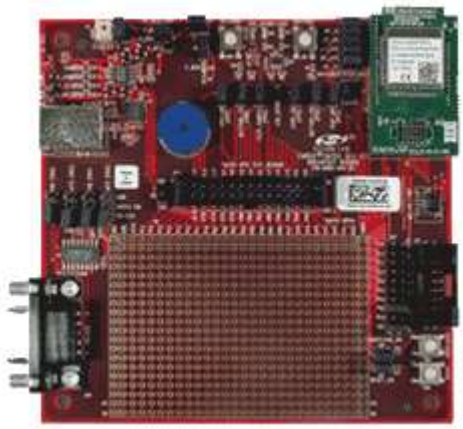
Part Number: EM35X-BBRD

Description: zigbee® EM35x NCP Add-On Kit

The Ember EM35x Breakout Board serves as a test bed for network hardware and applications. Each Breakout Board has an associated EM35x Module, which can be deployed as a node within a network application. The EM35x NCP add-on kit enables network co-processor development with an existing EM35x development kit, allowing designers to take maximum advantage of the superior power consumption, radio performance and CPU performance of the EM300 series chips in a network co-processor configuration.



The EM35x Network Co-Processor (NCP) Add-on Kit consists of:

- EM35x NCP Breakout Board
- EM35x Module
- Host Module
- Battery Pack

The EM35x NCP breakout board offers:

- 2 MB external DataFlash for zigbee OTA Profile support (connects to host GPIO)
- Configurable hardware support for application developmentTemperature sensor (connects to host GPIO)
- Two buttons (connect to host GPIO)
- Piezo buzzer (connect to host GPIO)

- Two LEDs (connect to host GPIO)
- RS-232 transceiver with DB-9 connector for serial communication (with hardware (HW) handshake support)
- USB transceiver with USB connector (Type B)Control Interface for the EM35x Radio Communications Module (RCM)
- RCM RESET and Bootload buttonsVoltage Supply connection (V_NCP_EN)
- Control Interface for the Host Module
- Host RESET and Bootload buttonsVoltage Supply connection (V_HOST_EN)
- 1.6" x 1.8", 0.1" pitch prototyping area
- 26-pin, 0.1" pitch, dual-row logic-analyzer shrouded connector10-pin, 0.05" pitch, dual-row packet trace port connector
- 12-pin, 0.1" pitch, dual-row, data emulation interface (DEI) with configuration header
- 14-pin, 0.05" pitch, single-row along with a 19-pin 0.05" pitch, single-row, board-to-board connector for the EM35x module
- 16-pin, 0.1" pitch, single-row along with a 20-pin 0.1" pitch, single-row, board-to-board connector for the host module
- Selection pins for DC power source selection (either external DC power supply, USB, Ember Adapter, or AAA battery pack). LEDs indicate which power supply has been selected.
- 2-pin module VDC pin for connection of an ammeter for EM35x module current measurements
- 2-pin module VDC pin for connection of an ammeter for host module current measurements
- 2-pin jumpers for each of the HW application peripherals, buzzer, buttons, piezo, temperature sensor, and LEDs2-pin jumpers for connection to TTL UART for either the EM35x UART (SC1) or host UART2. The selection jumpers route signals (RXD, TXD, nRTS, and nCTS) allow access to the TTL levels.

The EM35x NCP host module offers:

- Cortex®-M3 based microprocessor (STM32F103RET6)
- 512 kB FLASH, 64Kbytes RAM
- Host UART1 for use with STM32 serial bootloader and application serial UART
- Host UART2 for EZSP UART interface to EM35x NCPHost SPI1 for EZSP SPI interface to EM35x NCP
- 16 additional host GPIO routed to mating connector for application use on EM35x NCP breakout board
- All unused host GPIO routed to test points
- 14-pin, 0.1" pitch, dual-row, JTAG programming and debug header (could be used with a JTAG programmer such as SEGGER’s JLINK.)
- 16-pin, 0.1" pitch, single-row along with a 20-pin 0.1" pitch, single-row, board-to-board connector for mating to the EM35x NCP breakout board
- Spare host IO routed to test points for application use

The EM35x NCP breakout board contains the hardware peripherals for the development and deployment of a low-data-rate, low-power zigbee application on a host micro interfacing via EZSP protocol to the EM300 series NCPs. The NCP breakout board supports SPI and UART EZSP interfaces for development flexibility. Modules separately contain the EM35x NCP and the HOST microcontroller to allow for higher degrees of freedom during application development. The modules are connected to the NCP breakout board through robust connectors.

The EM35x NCP breakout board hardware stimuli include a temperature sensor, two buttons, a piezo buzzer, two LEDs, and a 1.6" x 1.8" through-hole prototyping area. The EM35x NCP breakout board also contains a USB transceiver with USB connector, a RS-232 transceiver with DB-9 connector, Data Emulation Interface (DEI), packet trace port (ISP) programming interface, and regulated power planes. The EM35x NCP breakout board also includes an optional host interface to 2 MB external DataFlash in support of the zigbee OTA Profile for over-the-air (OTA) application bootloader purposes.

When combined with an EM35x NCP breakout board, the NCP host module offers a complete zigbee wireless solution for development and deployment of a low-data-rate, low-power zigbee application. The host microprocessor is part of the two-layer (FR4-based) host module that connects to the EM35x NCP breakout board through the board-to-board connectors.

To enhance the software development experience, the EM35x NCP breakout board allows for EZSP interfaces between the EM35x NCP and a host via both SPI and UART (either to the host module or an external host). A configuration switch (SW1) is used to set up EZSP mode and serial communication paths.