

Quick Start Instructions

SmartRF® CC2420 ZigBee DK Development Kit

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Introduction

The CC2420 is a single-chip, IEEE 802.15.4 compliant and ZigBee ready RF transceiver. It provides a highly integrated, flexible low-cost solution for applications using the worldwide unlicensed 2.4 GHz frequency band. The CC2420 ZigBee DK is a natural supplement to the already established Chipcon CC2420 kits, i.e. the CC2420DK Development Kit and the CC2420DBK Demonstration Board Kit. The hardware is representative of an actual application, and is well suited as a prototyping, evaluation and demonstration platform targeting various ZigBee applications. With this kit a ZigBee Logical device type mapped to the IEEE 802.15.4 Full Function and Reduced Function Devices (FFD and RFD) using the CC2420 can be demonstrated. An FFD can take the role of a ZigBee Coordinator, Router, or End Device depending on the ZigBee logical device type configuration. An RFD can act as ZigBee End Device and cannot serve as a ZigBee Coordinator or ZigBee Router.

The CC2420 ZigBee DK provides, in addition to five CC2420DB's, a CC2400EB that together with CC2420EM can utilize the capability of running Chipcon's Packet Sniffer with the new ZigBee packet parser addition.

The hardware is documented in the CC2420 ZigBee DK User Manual, Z-Stack User Guide for the CC2420DB, CC2420DK User Manual, and CC2420DBK User Manual. The Z-Stack End User Distribution Package and documentation can be downloaded from Chipcon's ZigBee Developer Site. With this kit a user name and password is enclosed to access this site to enable download of the Z-Stack End User Distribution Package.

Please visit Chipcon ZigBee Developer Site regularly for updates to the documentation and software.

Getting started

1. Install Programmer's Notepad (<http://www.pnotepad.org/>), WinAVR/ AVR GCC (<http://winavr.sourceforge.net/>), (WinAVR 20040404 or newer), NET 1.1 Framework (http://msdn.microsoft.com/netframework/downloads/framework1_1/), and Atmel AVR Studio (http://www.atmel.com/dyn/products/tools.asp?family_id=607) software on a PC if not previously installed. Follow the instructions given by the installation programs. The PC must be running Windows 2000 or Windows XP.
2. Install the Chipcon Packet Sniffer and restart your PC with the USB cable connected between the PC and CC2400EB, and apply power to the CC2400EB with one of the enclosed power supplies in the kit.
http://www.chipcon.com/index.cfm?kat_id=2&subkat_id=12&dok_id=115T
3. Go to the Chipcon ZigBee Developer Site and login with the enclosed user name and password, enter registration information the first time, and then download the Z-Stack End User Distribution Package. Z-Stack documentation is included in this package.
4. Follow the instruction in the Z-Stack User Guide for the CC2420DB to build a sample ZigBee Device.

5. Connect the AVR JTAG ICE mkII to the JTAG connector of CC2420DB with the USB cable connected between the PC and AVR JTAG ICE mkII.
6. Connect the CC2420DB to an external power supply. The CC2420DB can be used with the enclosed 6V power supply or 4x 1.5 AA volt batteries using the included battery housing with clip. Turn on the power switch for the AVR JTAG ICE mkII.

Note:

The CC2420 ZigBee DK is not shipped with a ZigBee Sample Profile application preprogrammed in the Atmega128L flash of the CC2420DBs. Please use the 6V power supply when using the AVR JTAG ICE mkII for programming of the CC2420DBs.

7. Build the sample applications as described in the Z-Stack User Guide. Use the enclosed AVR JTAG ICE mkII to program one coordinator and at least two routers.
8. Start the Packet Sniffer for the selected channel. Please refer to the Packet Sniffer User Manual on how to select a channel. Default channel for the sample application is 11 (0x0B).
9. Run the sample ZigBee application as described in the Z-Stack User Guide for the CC2420DB.

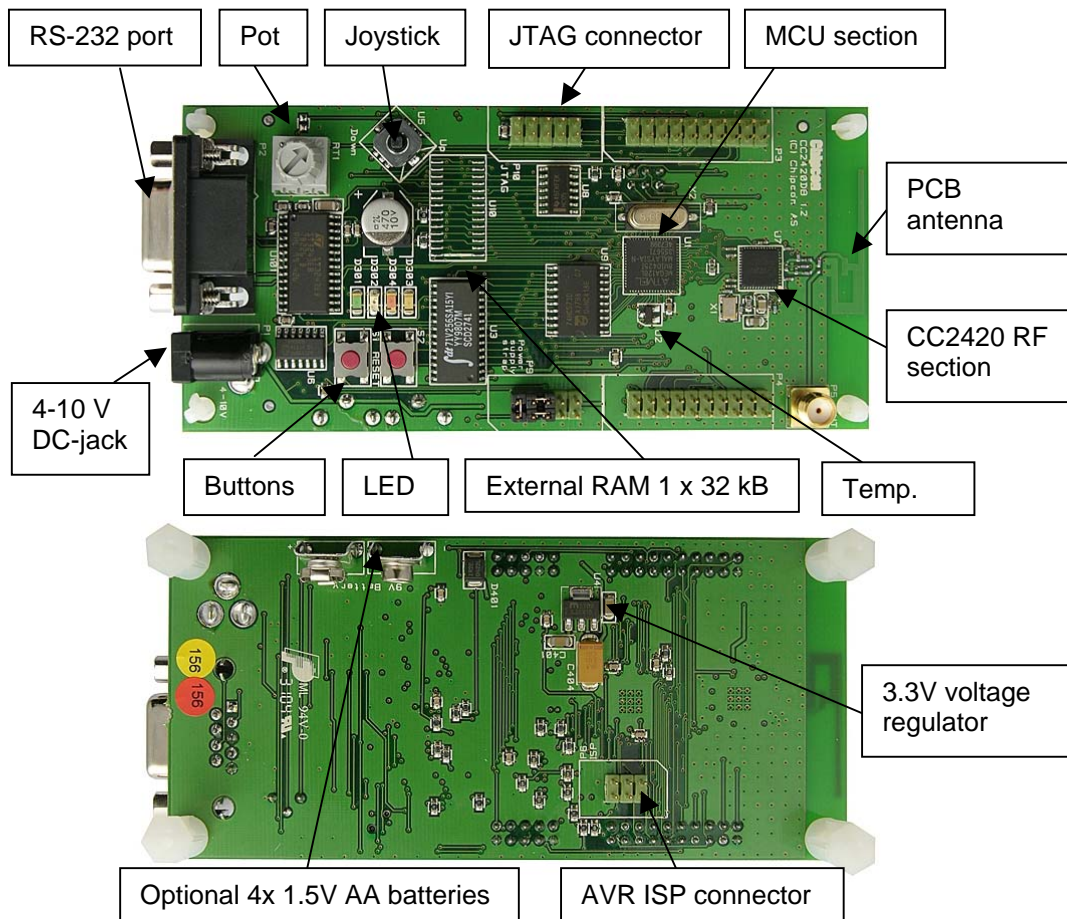


Figure 1: CC2420DB Demonstration Board