

CC2530 FAQ

1 CC2530 FAQ's

- **What is the CC2530 and what application space can I use this device in?**
 - o The CC2530 is an IEEE 802.15.4 compliant true System-on-Chip, supporting the proprietary 802.15.4 market as well as the ZigBee, ZigBee PRO, and ZigBee RF4CE standards. The CC2530 offers a 101dB link budget, excellent receiver sensitivity and robustness to interference, four power modes, multiple FLASH sizes, an extensive peripheral set including 2 USARTs, 12-Bit ADC, and 21 general-purpose GPIO, as well as much more. In addition to supporting general low power wireless communication by way of excellent RF performance, selectivity, and an industry-standard enhanced 8051 MCU core, the CC2530 can be coupled with one of TI's standard's compliant or proprietary networking protocol stacks (RemoTI, Z-Stack, or SimpliciTI) to ease development and get you to market fast. The CC2530 can be used for applications including remote control, consumer electronics, home controls, metering and smart energy, building automation, medical and much more. For more information on the CC2530 please visit www.ti.com/cc2530.
- **What is the CC2531 and how does it differ from the CC2530?**
 - o The CC2531 is the sister device of the CC2530 and in addition to all of the great performance and functionality of the CC2530 offers full-speed USB 2.0 compliant operation, support for five endpoints, offers a 1KB HW USB FIFO with double buffering, supports packet sizes up to 512 bytes, and has an internal PLL meaning no dedicated crystal is required.
- **When will the CC2530 and CC2531 hardware be available?**
 - o Texas Instruments is already at full production with the CC2530 including samples, development kits, software / protocol stack, support, tools, documentation, and everything else needed to get a product to market. The CC2531 will RTM sometime mid fourth quarter 2009.
- **What is the major difference between the CC2530 and the previous generation IEEE 802.15.4 SoC, the CC2430? Why should I use the CC2530 if I'm using the CC2430 now?**
 - o When compared to the first generation CC2430, the CC2530 offers improved RF performance, up to 256kB flash to support larger applications, powerful address recognition and a packet processing engine, a well matched RF front end, a smaller package, IR generation circuitry, and ZigBee PRO and ZigBee RF4CE support.
 - o For existing products based on the CC2430 an upgrade to the CC2530 will require a new PCB layout and, depending on the application and networking protocol, minor changes for the software / stack port. Both the CC2430 and CC2530 are fully IEEE 802.15.4 compliant and therefore newer devices built with the CC2530 will be able to communicate and interoperate with any device built on the CC2430 (or any IEEE 802.15.4 compliant radio) so long as the network protocol and applications are compatible.
- **Will TI obsolete the CC2430 now that the CC2530 is in production?**
 - o TI has a strong policy regarding obsolescing parts. TI's Obsolescence policy is as follows:
 - o **Product Obsolescence Policy:** We are committed to provide notification of Product Obsolescence and offer a Life Time Buy (LTB) opportunity, where applicable. TI allows up the 12 months for an order to be place from the date of notification and allows an additional 6 months to take delivery of the ordered product.
 - o Please visit <http://focus.ti.com/quality/docs/gencontent.tsp?templateId=5909&navigationId=11224&contentId=5020> for more information.
- **Does TI offer any modules if I do not want to design my own RF solution?**
 - o TI works with a strong network of third parties who provide modules, design services, consulting, testing, manufacturing, and more. We are working with

several third parties at this time to develop a simple drop-in module based on the CC2530. Please visit www.ti.com/lprfnetwork to learn more about our third party network and what modules are available today.

- **What range can I expect to get out of the CC2530?**
 - o The question of range is always a difficult one to answer because it is highly dependent on antenna design, product enclosure, the physical environment including obstructions or obstacles in the environment as well as things like temperature and humidity in the air. Using the CC2530DK reference design (schematic and gerber's available at www.ti.com/cc2530dk) we are able to achieve 99+% packet transmission success at 400m in an open-air, line-of-sight, outdoor environment.
- **How can I improve the range of the CC2530?**
 - o The CC2590 and CC2591 devices provide a highly integrated 2.4 GHz RF front-end low-power, low-voltage solution to boost output power and increase receiver sensitivity for our portfolio of 2.4 GHz devices including the CC2530. The CC259x devices provide a power amplifier for improved output power and a LNA (low-noise amplifier) figure for improved received sensitivity, as well as switches, RF-matching and balun. Please visit www.ti.com/cc2591 for more information.
- **How do I flash a device in production?**
 - o The CC2530 provides a two-wire debug interface which allows programming of the on-chip flash, and also provides access to memory and register contents and debug features. More information on the CC2530 debug interface is available in the CC253x User's Guide (available at www.ti.com/CC2530). For assistance with programming tools and production support please contact distribution or visit the LPRF network of third parties (www.ti.com/lprfnetwork).
- **How do I obtain IEEE addresses for my product**
 - o A range of IEEE addresses can be purchased from the IEEE organization (www.ieee.org). You can obtain 2⁴⁰ addresses for a relatively nominal fee. Additionally the CC2530 comes pre-programmed with a unique IEEE address, taken from the pool of Texas Instrument's allocated addresses, which can be used in your product.
- **Do I need to get a VID and a PID to utilize USB in the CC2531**
 - o To utilize USB 2.0 in the CC2531 in a product you will need to get a VID and PID from the USB organization
- **What tools and/or kits are available to get started working with the CC2530?**
 - o In addition to samples of the CC2530 we also provide various kits and tools to get you started quickly on your design. These include the CC2530DK for IEEE 802.15.4 proprietary or ZigBee PRO development, the CC2530ZDK for a larger and more extensive ZigBee PRO development effort, the CC2530EMK for additional evaluation modules, and the RemoTI-CC2530DK kit for development of ZigBee RF4CE compliant applications. Beyond these kits TI also provides our proprietary SimpliTI stack, our ZigBee PRO compliant Z-Stack, and our ZigBee RF4CE compliant RemoTI stack. All stacks come as installers, work with the IAR compiler tools set, and include sample application code and documentation to get you up and running fast. Additionally TI offers a debugger, Flash programmer, SmartRF Studio development tool, packet sniffer, and other tool support, including additional tools supported through our third party network.
- **What SW and network protocol support comes with the CC2530?**
 - o Based on the type of product being built and your networking and system requirements TI has a range of software protocol stacks available for your design.
 - o On the proprietary side we offer our SimpliTI networking protocol designed for proprietary lightweight, easy to use, small RF networks typically containing battery operated devices for low data rate applications. Please visit www.ti.com/simpliTI for more information.
 - o For products requiring multi-hop mesh networking, either in a proprietary networking setting or as part of an interoperable network for the Smart Energy, Home Automation, Commercial Building Automation, Medical, or Telecom space,

- TI offers our ZigBee and ZigBee PRO compliant Z-Stack. More information on Z-Stack can be found at www.ti.com/z-stack.
- Finally for anyone looking for compliance to the latest RF4CE RF-based remote control standard focusing on the consumer electronics space, or simply a star networking protocol with various upper layer support functionality including network startup and formation, pairing / binding, security, frequency agility, low-power operation, and unicast and broadcast communication over several channels, TI offers RemoTI. More information on RemoTI can be found at www.ti.com/rf4ce. Please check out the RemoTI FAQ as well as the RemoTI Developer's Guide for more technical information.
 - **Will the SmartRF04EB boards work with the CC2530EM?**
 - The CC2530 and CC2530EM modules represent the state of the art in TI's IEEE 802.15.4 compliant System-On-Chip portfolio, and to keep up with the times we have focused our efforts on supporting state of the art tools including our newest SmartRF05EB development board. Unfortunately we have not included support for the older SmartRF04EB when developing for the CC2530, but the CC2530DK and CC2530ZDK come with all the necessary hardware so when you order a kit you will have everything needed to be up and developing on the CC2530 fast!
 - **Can I use the same RF design or antenna for the CC2530 that I used with the CC2430?**
 - In addition to being contained in a smaller package, the CC2530 has improved RF output power, sensitivity, selectivity, and in general provides a significant improvement in performance over the previous generation CC2430. As such, any design based on the CC2530 will require a new RF design. The good news is that TI provides several reference designs and layouts based on your application needs. Please visit the CC2530 product folder page to download reference designs for the CC2530 (www.ti.com/CC2530).
 - **Does the CC2530 support backwards compatibility for IR controls in addition to RF control?**
 - The CC2530 is designed with legacy IR support in mind, providing IR generation circuitry to enhance your CC2530 based remote control with legacy IR support. Please see our application note on how to utilize the CC2530 for IR coding.

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