# SimpleLink™ Wi-Fi® Family
## CC3100 / CC3200 Internet-on-a-chip™ Solutions

**TEXAS INSTRUMENTS**

## Overview

TI makes connectivity even easier with the next-generation SimpleLink Wi-Fi solutions. The product family features Internet-on-a-chip solutions for the Internet of Things (IoT) space solving industry challenges for broad embedded applications. The SimpleLink CC3100 and CC3200 enable:

- Easier Wi-Fi development
- Secure and fast connection to the cloud
- IoT made possible for low-power MCU applications
- Growing cloud ecosystem for quicker time to market and long-term platform

 With the SimpleLink Wi-Fi family **no Wi-Fi experience is required** for the user who can choose between two options, both pin-to-pin compatible.

### CC3100 Wireless Network Processor
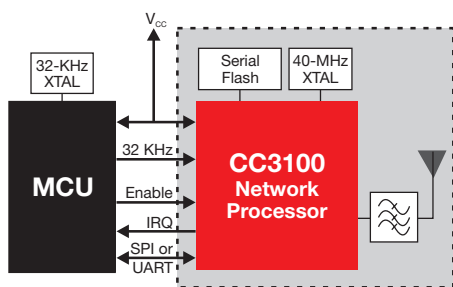


**The CC3100 device** is a Wi-Fi, self-contained network processor with on-chip web server and embedded TCP/IP stack that connects easily to any low-cost and low-power microcontroller (MCU) such as the MSP430F552, thanks to a simple UART or SPI driver and host memory footprint as low as 7kB of code to reside on the MCU. Hardware design is made easy for space-constrained boards with a small 64-pin 9×9 mm QFN package. Certified modules will

also be made available. In addition, designers are given many options to ensure Internet connection in headless applications. Flexible connection methods (provisioning) include Access Point Mode, WPS, SmartConfig™ Technology and others. On the security side, an embedded hardware cryptography engine allows establishing TLS secure Link in 200ms.

 Interfacing to any MCU, designed with low-power radio and advanced low-power modes, the SimpleLink Wi-Fi family makes sensor-to-the-cloud connectivity possible. Moreover, the solution contains several Internet protocols in ROM including mDNS, DNS, SSL/TLS and HTTP server. There are also several wireless applications such as instant messaging, email and more. The SimpleLink Wi-Fi family enables easy implementation of Internet applications such as service discovery, email, instant messaging, and security.

### CC3200 Wireless MCU

**The SimpleLink Wi-Fi CC3200 solution** capitalizes on the CC3100 benefits and



integrates a high-performance 80-MHz ARM® Cortex®-M4 MCU and peripherals allowing customers to develop their application with a single device. Developers can fully access the MCU portion with 200kB of application code available fully independent from the Wi-Fi processing. The peripheral set includes parallel camera, I²S audio, SDMMC, ADC, SPI, UART, I²C, PWM, I/Os, built-in power management and RTC enabling many MCU embedded applications to connect to the cloud.

### Software and Support

Both CC3100 and CC3200 devices are supported by a software development kit (SDK) including software drivers, sample applications, API guide, user documentation and a world-class support E2E™ community. On the integrated Cortex-M4, all sample applications in the SDK are supported with Code Composer Studio™ Integrated Development Environment and no RTOS. In addition, a few of the applications support IAR, GCC, Free RTOS, TI-RTOS. Categories of applications are outlined below:

- Internet-on-a-chip sample applications
  - Email from SimpleLink Wi-Fi solution
  - Information Center – get time and weather from Internet
  - http server – host a web page on SimpleLink Wi-Fi solution
  - XMPP – Instant Message chat client
  - Serial interface
- Wi-Fi sample apps
  - Easy Wi-Fi configuration
  - Station, AP modes
  - TCP/UDP
  - Security – Enterprise/Personal, TLS/SSL
- MCU peripheral samples apps
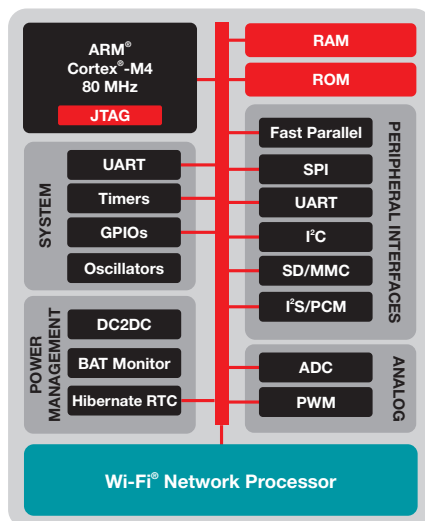
## Getting started: SimpleLink™ CC3100 and CC3200 hardware development kits

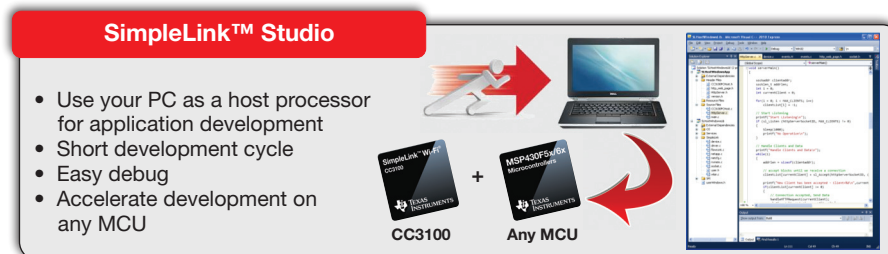| Kit name | Description | When to buy this? |
|---|---|---|
| **SimpleLink Wi-Fi C3200 Internet-on-a-chip wireless microcontroller (MCU)** | | |
| **CC3200-LAUNCHXL**<br><br>$29.99 USD | • CC3200 Launchpad<br>• Single-chip Internet of Things solution with integrated MCU | Want to use Wi-Fi® wireless MCU – single-chip Internet-on-a-chip™ |
| **SimpleLink Wi-Fi CC3100 Internet-on-a-chip wireless network processor** | | |
| **CC3100BOOST-CC31XXEMUBOOST-EXP430F5529LP**<br><br>$49.99 USD | • CC3100 BoosterPack + Advanced emulation board + MSP430F5529 Launchpad | Want to evaluate all CC3100 sample apps, using TI's ultra-low-power MSP430™ MCU family |
| **CC3100BOOST-CC31XXEMUBOOST**<br><br>$36.99 USD | • CC3100 BoosterPack + flashing and advanced debug capability<br>• Compatible LaunchPads (sold separately) | Want to use CC3100 with any other MCU. Need one EMUBOOST board for flashing, using radio tool, using SimpleLink Studio (MCU development on PC) or advanced debug |
| **CC31XXEMUBOOST**<br><br>$22.99 USD | • Flashing and advanced debug capability for CC3100BOOST | Needed for flashing CC3100BOOST, using radio tool, using SimpleLink studio (MCU development on PC), doing advanced debug with CC3100 |
| **CC3100BOOST**<br><br>$19.99 USD | • CC3100 BoosterPack – cannot flash without CC3100EMUBOOST – only one needed for all CC3100BOOST<br>• Compatible LaunchPads (sold separately) | If buying additional CC3100BOOST boards – assuming you already have CC31XXEMUBOOST for flashing, radio tool and possible advanced debug |

## Growing cloud of ecosystem partners

**The TI IoT cloud ecosystem** helps manufacturers using TI technology to easily and rapidly connect more to the IoT. Open to cloud service providers with a differentiated service offering and value-added services running on one of TI's IoT solutions, the TI cloud ecosystem provides options to meet individual manufacturer needs.

## SimpleLink Studio: Add CC3100 SimpleLink Wi-Fi to any MCU

**SimpleLink Studio for CC3100** is a Microsoft Windows®-based software tool to aid in the development of embedded networking applications and software tool for MCUs. Using SimpleLink Studio for CC3100, embedded software developers can develop and test applications using any desktop IDE, such as Visual Studio or Eclipse; this allows the code to be easily tested while it is under development, and then later ported to an MCU without having to be modified. Developers can then connect their applications to the cloud using the CC3100 BoosterPack.

**SimpleLink™ Studio**

- Use your PC as a host processor for application development
- Short development cycle
- Easy debug
- Accelerate development on any MCU

CC3100 + Any MCU

The platform bar, Code Composer Studio, E2E, Internet-on-a-chip, MSP430, SimpleLink and SmartConfig are trademarks of Texas Instruments. All other trademarks are the property of their respective owners.

**TEXAS INSTRUMENTS**

# IMPORTANT NOTICE

Texas Instruments Incorporated and its subsidiaries (TI) reserve the right to make corrections, enhancements, improvements and other changes to its semiconductor products and services per JESD46, latest issue, and to discontinue any product or service per JESD48, latest issue. Buyers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All semiconductor products (also referred to herein as "components") are sold subject to TI's terms and conditions of sale supplied at the time of order acknowledgment.

TI warrants performance of its components to the specifications applicable at the time of sale, in accordance with the warranty in TI's terms and conditions of sale of semiconductor products. Testing and other quality control techniques are used to the extent TI deems necessary to support this warranty. Except where mandated by applicable law, testing of all parameters of each component is not necessarily performed.

TI assumes no liability for applications assistance or the design of Buyers' products. Buyers are responsible for their products and applications using TI components. To minimize the risks associated with Buyers' products and applications, Buyers should provide adequate design and operating safeguards.

TI does not warrant or represent that any license, either express or implied, is granted under any patent right, copyright, mask work right, or other intellectual property right relating to any combination, machine, or process in which TI components or services are used. Information published by TI regarding third-party products or services does not constitute a license to use such products or services or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property of the third party, or a license from TI under the patents or other intellectual property of TI.

Reproduction of significant portions of TI information in TI data books or data sheets is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices. TI is not responsible or liable for such altered documentation. Information of third parties may be subject to additional restrictions.

Resale of TI components or services with statements different from or beyond the parameters stated by TI for that component or service voids all express and any implied warranties for the associated TI component or service and is an unfair and deceptive business practice. TI is not responsible or liable for any such statements.

Buyer acknowledges and agrees that it is solely responsible for compliance with all legal, regulatory and safety-related requirements concerning its products, and any use of TI components in its applications, notwithstanding any applications-related information or support that may be provided by TI. Buyer represents and agrees that it has all the necessary expertise to create and implement safeguards which anticipate dangerous consequences of failures, monitor failures and their consequences, lessen the likelihood of failures that might cause harm and take appropriate remedial actions. Buyer will fully indemnify TI and its representatives against any damages arising out of the use of any TI components in safety-critical applications.

In some cases, TI components may be promoted specifically to facilitate safety-related applications. With such components, TI's goal is to help enable customers to design and create their own end-product solutions that meet applicable functional safety standards and requirements. Nonetheless, such components are subject to these terms.

No TI components are authorized for use in FDA Class III (or similar life-critical medical equipment) unless authorized officers of the parties have executed a special agreement specifically governing such use.

Only those TI components which TI has specifically designated as military grade or "enhanced plastic" are designed and intended for use in military/aerospace applications or environments. Buyer acknowledges and agrees that any military or aerospace use of TI components which have *not* been so designated is solely at the Buyer's risk, and that Buyer is solely responsible for compliance with all legal and regulatory requirements in connection with such use.

TI has specifically designated certain components as meeting ISO/TS16949 requirements, mainly for automotive use. In any case of use of non-designated products, TI will not be responsible for any failure to meet ISO/TS16949.

| Products | | Applications | |
|---|---|---|---|
| Audio | www.ti.com/audio | Automotive and Transportation | www.ti.com/automotive |
| Amplifiers | amplifier.ti.com | Communications and Telecom | www.ti.com/communications |
| Data Converters | dataconverter.ti.com | Computers and Peripherals | www.ti.com/computers |
| DLP® Products | www.dlp.com | Consumer Electronics | www.ti.com/consumer-apps |
| DSP | dsp.ti.com | Energy and Lighting | www.ti.com/energy |
| Clocks and Timers | www.ti.com/clocks | Industrial | www.ti.com/industrial |
| Interface | interface.ti.com | Medical | www.ti.com/medical |
| Logic | logic.ti.com | Security | www.ti.com/security |
| Power Mgmt | power.ti.com | Space, Avionics and Defense | www.ti.com/space-avionics-defense |
| Microcontrollers | microcontroller.ti.com | Video and Imaging | www.ti.com/video |
| RFID | www.ti-rfid.com | | |
| OMAP Applications Processors | www.ti.com/omap | **TI E2E Community** | e2e.ti.com |
| Wireless Connectivity | www.ti.com/wirelessconnectivity | | |

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
Copyright © 2014, Texas Instruments Incorporated