

# High Performance and Low Power...The Original Dynamic Duo



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Peanut butter and jelly. Pizza and Monday night football. Milk and cookies. What do all these things have in common? They make a perfect pair. Likewise TI's MSP432™ microcontroller pairs perfectly with TI's new pre-certified SimpleLink™ Bluetooth® low energy module. This textbook combination makes it seamless to add Bluetooth low energy connectivity to any application.

From healthcare to factory automation, the need for wireless connectivity stems far beyond personal gadgets and activity trackers. Let's take a look at one example where TI's twosome, the MSP432 MCU + CC2650MODA module, amplifies the way we've traditionally monitored our homes for carbon monoxide or radon gas leaks (Figure 1).



**Figure 1. Carbon Monoxide Detector**

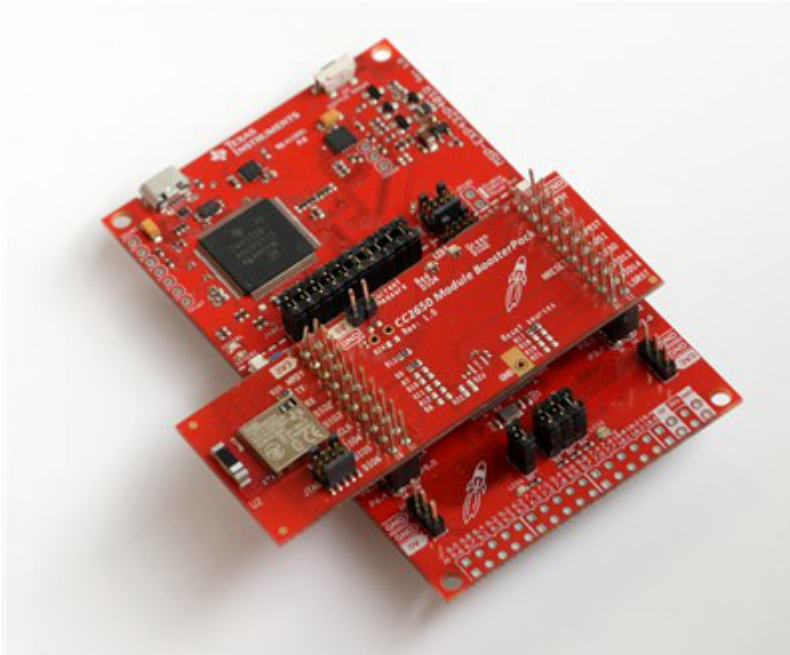
Imagine creating a product that captures higher precision air quality measurements and can easily transmit data to a smartphone that has a rich graphical display to monitor results. This takes home gas detectors to the next level of innovation. Users can receive an alert on their phone before the batteries in the carbon monoxide detector need to be replaced. Detection systems will no longer need reset buttons or display screens because they can be controlled by a tablet. This can reduce the size and cost of many carbon monoxide or radon gas detectors. With TI's MSP432 MCU and Bluetooth low energy module, gas monitoring applications can be designed to exceed homeowner's expectations without increasing design effort.

Both of these devices perform exceptionally on their own: The MSP432 MCU is ultra-low power with an integrated 14-bit SAR analog-to-digital converter (ADC) capable of 1Msps sampling rate and floating-point digital signal processing (DSP) instruction set to process the most precise measurements. The Bluetooth low energy

CC2650MODA module is pre-certified with completely integrated hardware and software to reduce development time and simplify procurement.

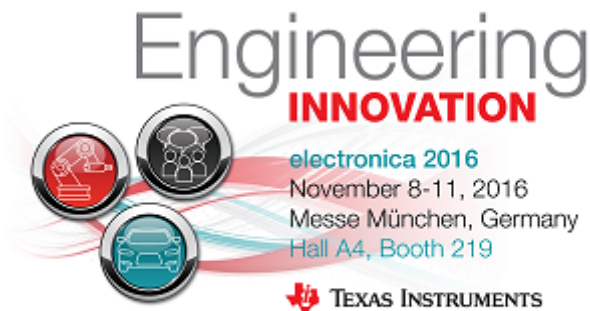
Now combine these two devices together and it's a great marriage between high performance and low power. With TI's BLE-Stack simple network processor software, the MSP432 MCU handles all the user application code and the CC2650MODA module runs the Bluetooth low energy related processing. This minimizes the RF design effort as users only have to configure TI's simple network processor API not the whole protocol stack. There is increasing platform continuity as both devices are low-power ARM® Cortex®-M based and are easy to use with TI's highly flexible software development kits.

The evaluation process is even simpler with TI's [bundle pack](#) featuring the MSP432 MCU LaunchPad™ development kit and the CC2650MODA module BoosterPack™ plug-in module and there is an example code available on [TI Resource Explorer](#) to build your first Bluetooth low energy project ([Figure 2](#)).



**Figure 2. MSP432 LaunchPad Development Kit with the CC2650MODA Module BoosterPack Kit**

Ready to see this dynamic duo in action? Stop by the TI booth (hall A4, Booth 219) at [electronica 2016](#) to see our demo showcasing the precision and scalability of the MSP432 MCU and the CC2650MODA module.



**Figure 3. Visit TI at electronica 2016**

Learn more:

- Get started running your first Bluetooth low energy project with [Project Zero](#)
- Utilize TI's SimpleLink Academy training on [Bluetooth low energy simple network processor](#)
- Interested in learning more about Bluetooth low energy, read our other blog posts:
  - [Easily add Bluetooth® low energy to your existing MCU with a new certified module](#)
  - [Make your Bluetooth® low energy solution fast, simple and secure with new Bluetooth 4.2 certified software](#)
  - [How Bluetooth® 4.2 can help enable product security](#)
  - [Bluetooth® 5 will unlock the power of the SimpleLink™ CC2640 wireless MCU](#)
  - [How Bluetooth® low energy technology revolutionizes healthcare](#)
- Want more information about our MSP432 MCUs? Check out these other blogs:
  - [The secret of using noise to improve your ADC's performance](#)
  - [How to leverage the flexibility of an integrated ADC in an MCU for your design to outshine your competitor – part 1](#)
  - [How to leverage the flexibility of an integrated ADC in an MCU for your design to outshine your competitor – part 2](#)
  - [Top 12 ways to achieve low power using the features of an integrated ADC](#)
  - [MCUs can recognize what you say](#)

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