

MSP430™ + CC2560 Bluetooth® Platform



Platform features

- *Bluetooth* 2.1 + Enhanced Data Rate (EDR) with best-in-class *Bluetooth* RF performance
- Complete, validated, certified, production-ready modules offered by Panasonic: CC2560-PAN1325, CC2560-PAN1315
- MSP430BT5190 pre-integrated with *Bluetooth* software stack and Panasonic module
- Full-featured evaluation boards for hardware and software prototyping
- Software development kit including *Bluetooth* software stack and serial port profile (SPP)
- Sample applications and demos provided in source code showing API usage
- Getting started guides, documentation and support: www.ti.com/connectivitywiki

Platform benefits

- TI's proven 7th generation *Bluetooth* technology enables a robust, high-throughput wireless connection with extended range and power efficiency
- CC2560-PAN1325/15 modules lower manufacturing and operating costs, save board space, ease certification, and minimize RF expertise required
- Pre-integration of host controller and *Bluetooth* modules simplifies and reduces hardware and software development, allowing faster time-to-market
- Evaluation tools allow for extensive prototyping and development of applications that require *Bluetooth* connectivity

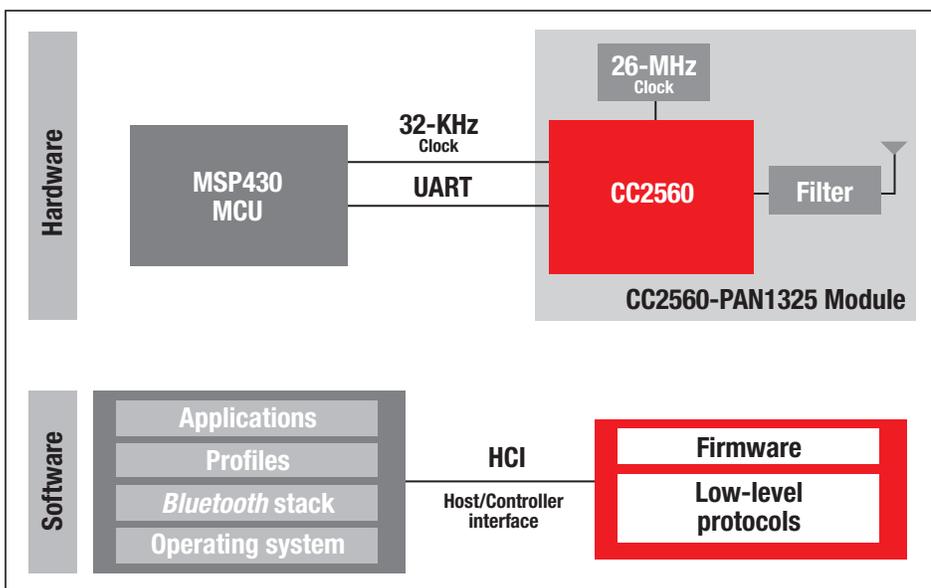
Key features:

CC2560-PAN1325/15

- Fully qualified *Bluetooth*® v2.1 + EDR module
- Data rate up to 2.1 Mbps
- Best-in-class *Bluetooth* RF performance (Tx power, Rx sensitivity, blocking)
- +10 dBm typical Tx power with transmit power control
- -93 dBm typical receiver sensitivity
- Support for *Bluetooth* power saving modes (sniff, hold)
- *Bluetooth*, FCC, CE, IC certified
- Dimensions: 9 mm x 9.5 mm x 1.8 mm (CC2560-PAN1325, integrated antenna); 6.5 mm x 9.5 mm x 1.8 mm (CC2560-PAN1315, without antenna)
- *Bluetooth* + ANT footprint-compatible module available (CC2567-PAN1327); *Bluetooth* + BLE available in 2H 2011
- Integrates with TI's ultra-low power MSP430 microcontroller

MPS430BT5190

- Up to 25-MIPS operation
- 256-KB Flash, 16-KB RAM
- 1.8 V to 3.6 V supply
- Ultra-low power consumption
- Wake-up from standby mode in less than 5 μ s
- 16-Bit RISC architecture
- Fully integrated LDO
- Three 16-bit timers
- 12-bit A/D converter
- Up to four universal serial communication interfaces (SPI/I²C/UART)
- 32-bit hardware multiplier
- Real-time clock module
- Up to 87 I/O pins



▲ CC2560-PAN1325 Bluetooth system

Hardware and software development

EZ430-RF2560 kit

\$99 all-in-one evaluation kit

- Integrates CC2560 and MSP430BT5190
- Pre-flashed eZ430-RF2560 SDK with MindTree's EtherMind *Bluetooth* stack, serial port profile (SPP) and embedded sample applications running on FreeRTOS
- Supports software development with the MSP430BT5190 microcontroller
- Interactive sample PC game for demonstration of *Bluetooth* use in a remote control application using accelerometer data
- Removable USB stick enclosure, 2 LEDs, 3 pushbuttons

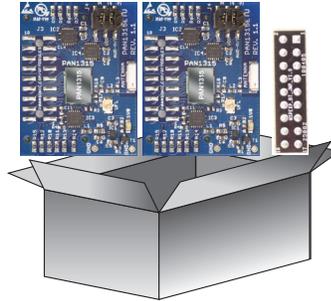


▲ EZ430-RF2560 Kit

PAN1315EMK Kit

Bluetooth development and evaluation kit

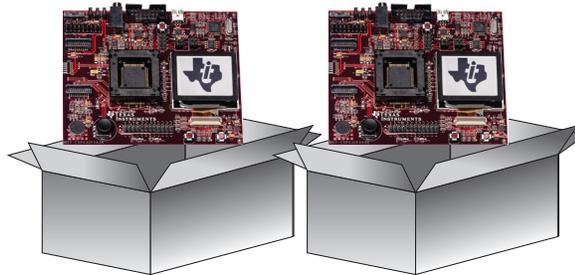
- The kit, when coupled with the MSP430F5438 Experimenter Board, enables early software and hardware prototyping for wireless embedded applications
- The tool includes 2 PAN1315ETU's (Easy-To-Use) boards each containing the CC2560-PAN1315 Bluetooth module with on-board antenna connector and RF thru-line connector
- Users may download the MindTree EtherMind *Bluetooth* stack and SDK with SPP and embedded sample applications running on FreeRTOS
- The combination of sample applications in source format and the peripheral rich experimenter board makes this platform a versatile tool for extensive prototyping and easy development of applications that require *Bluetooth* connectivity



PAN1315EMK:
PAN1315 Evaluation Module Kit (EMK)



MSP-FET4300UIF:
MSP430 USB Debugging Interface



MSP-EXP430F5438:
MSP430F5438 Experimenter Boards

MindTree EtherMind™ Bluetooth Stack

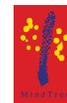
- EtherMind *Bluetooth* software development kit (SDK) is supported on the PAN131xETU + MSP430BT5190 device and EZ430-RF2560 kit
- Quickly evaluate EtherMind *Bluetooth* software protocol stack and SPP and implement applications using it
- SPP allows for reception and transmission of generic data streams enabling cable replacement
- Pre-integrated into TI MSP430BT5190 with FreeRTOS
- Sample applications to show turning *Bluetooth* on, discovery, inquiry, pairing, receive/transmit data over SPP, get and transmit RF parameters
- Compact stack enabling sufficient RAM and Flash headroom for custom application development over *Bluetooth* SPP

Platform partners

- Panasonic - RF modules and design services
www.panasonic.com/ti

Panasonic

- MindTree - software and design services
www.mindtree.com



Important Notice: The products and services of Texas Instruments Incorporated and its subsidiaries described herein are sold subject to TI's standard terms and conditions of sale. Customers are advised to obtain the most current and complete information about TI products and services before placing orders. TI assumes no liability for applications assistance, customer's applications or product designs, software performance, or infringement of patents. The publication of information regarding any other company's products or services does not constitute TI's approval, warranty or endorsement thereof.

The platform bar and MSP430 are trademarks of Texas Instruments. The *Bluetooth* word mark and logos are owned by the *Bluetooth* SIG, Inc., and any use of such marks by Texas Instruments is under license. All other trademarks are the property of their respective owners.

A042210



IMPORTANT NOTICE

Texas Instruments Incorporated and its subsidiaries (TI) reserve the right to make corrections, modifications, enhancements, improvements, and other changes to its products and services at any time and to discontinue any product or service without notice. Customers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All products are sold subject to TI's terms and conditions of sale supplied at the time of order acknowledgment.

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

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

TI does not warrant or represent that any license, either express or implied, is granted under any TI patent right, copyright, mask work right, or other TI intellectual property right relating to any combination, machine, or process in which TI products or services are used. Information published by TI regarding third-party products or services does not constitute a license from TI 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 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. Reproduction of this information with alteration is an unfair and deceptive business practice. TI is not responsible or liable for such altered documentation. Information of third parties may be subject to additional restrictions.

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

TI products are not authorized for use in safety-critical applications (such as life support) where a failure of the TI product would reasonably be expected to cause severe personal injury or death, unless officers of the parties have executed an agreement specifically governing such use. Buyers represent that they have all necessary expertise in the safety and regulatory ramifications of their applications, and acknowledge and agree that they are solely responsible for all legal, regulatory and safety-related requirements concerning their products and any use of TI products in such safety-critical applications, notwithstanding any applications-related information or support that may be provided by TI. Further, Buyers must fully indemnify TI and its representatives against any damages arising out of the use of TI products in such safety-critical applications.

TI products are neither designed nor intended for use in military/aerospace applications or environments unless the TI products are specifically designated by TI as military-grade or "enhanced plastic." Only products designated by TI as military-grade meet military specifications. Buyers acknowledge and agree that any such use of TI products which TI has not designated as military-grade is solely at the Buyer's risk, and that they are solely responsible for compliance with all legal and regulatory requirements in connection with such use.

TI products are neither designed nor intended for use in automotive applications or environments unless the specific TI products are designated by TI as compliant with ISO/TS 16949 requirements. Buyers acknowledge and agree that, if they use any non-designated products in automotive applications, TI will not be responsible for any failure to meet such requirements.

Following are URLs where you can obtain information on other Texas Instruments products and application solutions:

Products

Audio	www.ti.com/audio
Amplifiers	amplifier.ti.com
Data Converters	dataconverter.ti.com
DLP® Products	www.dlp.com
DSP	dsp.ti.com
Clocks and Timers	www.ti.com/clocks
Interface	interface.ti.com
Logic	logic.ti.com
Power Mgmt	power.ti.com
Microcontrollers	microcontroller.ti.com
RFID	www.ti-rfid.com
RF/IF and ZigBee® Solutions	www.ti.com/lprf

Applications

Communications and Telecom	www.ti.com/communications
Computers and Peripherals	www.ti.com/computers
Consumer Electronics	www.ti.com/consumer-apps
Energy and Lighting	www.ti.com/energy
Industrial	www.ti.com/industrial
Medical	www.ti.com/medical
Security	www.ti.com/security
Space, Avionics and Defense	www.ti.com/space-avionics-defense
Transportation and Automotive	www.ti.com/automotive
Video and Imaging	www.ti.com/video
Wireless	www.ti.com/wireless-apps

TI E2E Community Home Page

e2e.ti.com

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
Copyright © 2011, Texas Instruments Incorporated