

## **Dual-Mode Bluetooth® CC2564 Module Evaluation Board**

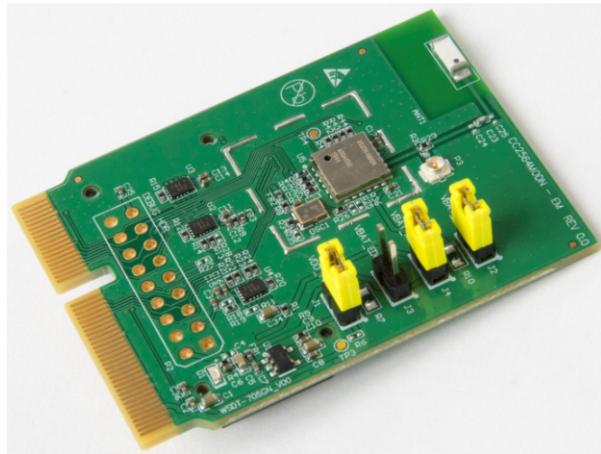
### **1 Introduction**

TI intends the CC2564MODNEM board to evaluate of the dual-mode *Bluetooth*® CC2564 module which supports classic *Bluetooth* and *Bluetooth* low energy wireless technology. The CC2564MODNEM board works with TI's Hardware Development Kit (HDKs), such as the following:

- MSP-EXP430F5529
- MSP-EXP430F5438
- DK-TM4C123G
- DK-TM4C129X

The TI CC256x *Bluetooth* device is a complete basic rate (BR), enhanced data rate (EDR), and LE host controller interface (HCI) solution that reduces the effort of the designer and time to market for your solution. Based on TI's seventh-generation core, the device is a product-proven solution that supports *Bluetooth* 4.1 dual-mode protocols.

This document is an overview of the CC2564MODNEM board and describes the hardware and software tools for the board. This quick start guide shows basic settings for the CC2564MODNEM board. For further details, see the *Dual-Mode Bluetooth CC2564 Module Evaluation Board User's Guide* ([SWRU390](#)). See [Figure 1](#) to view the CC2564MODNEM board.



**Figure 1. CC2564MODNEM Board**

### **2 CC2564MODN Kit Contents**

The contents of the kit are as follows:

- One CC2564MODNEM board with the TI dual-mode *Bluetooth* CC2564 module
- One block jumper for the MSP-EXP430F5438 board
- Four Jumpers for the MSP-EXP430F5529 Board

MSP430 is a trademark of Texas Instruments.

*Bluetooth* is a registered trademark of Bluetooth SIG.

### 3 Hardware and Software Requirements

For a complete evaluation, the CC2564MODNEM board requires the hardware (see [Figure 2](#)) and software tools from the following list:

- Hardware
  - An MSP430™ experimenter board (sold separately) or a TM4C development kit (sold separately):
  - MSP430 experimenter board options:
    - [MSP-EXP430F5529](#)
    - [MSP-EXP430F5438](#)
  - TM4C development kit options
    - [DK-TM4C123G](#)
    - [DK-TM4C129X](#)
- Software
  - TI dual-mode *Bluetooth* stack
    - On MSP430™ MCUs: [CC256XMSPTBLESW](#)
    - On TM4C MCUs: [CC256XM4BTBLESW](#)
  - Other MCUs
    - On STM32F4 MCUs: [CC256XSTBTBLESW](#)

[Figure 2](#) shows example hardware setups for the CC2564MODNEM board using MSP-EXP430F5529 and MSP-EXP430F5438.

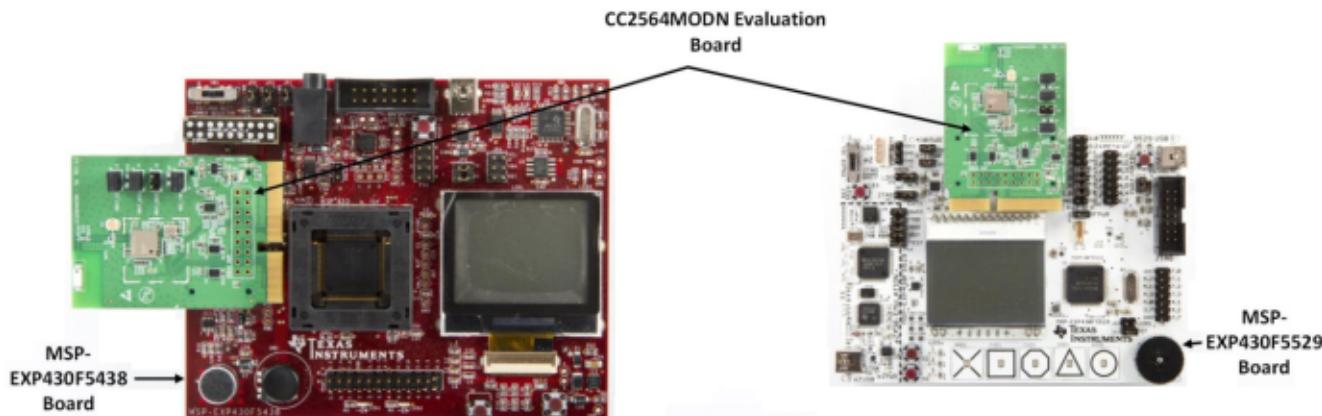


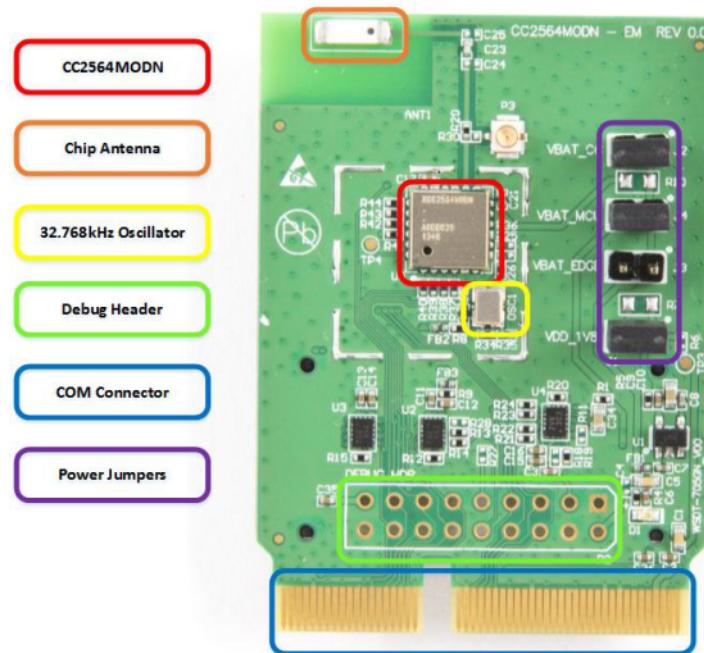
Figure 2. Hardware Setup

## 4 CC2564MODNEM Overview

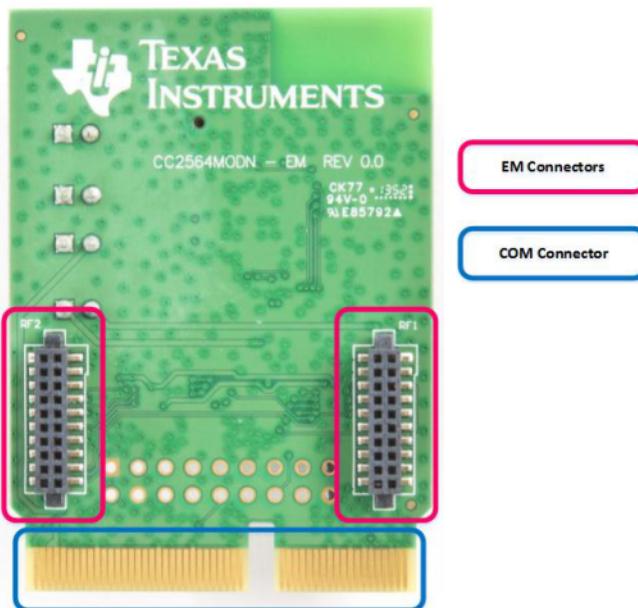
The CC2564MODNEM board has the following connectors:

- EM (default): I/Os are at 3.3 V.
- COM: I/Os are at 1.8 V.

[Figure 3](#) and [Figure 4](#) show an overview of the front and back of the CC2564MODNEM board.



**Figure 3. CC2564MODNEM Board Front Overview**



**Figure 4. CC2564MODNEM Board Back Connectors**

## 5 CC2564MODNEM Board Settings

### 5.1 EM Connector

The EM connectors can be mounted on a wide variety of TI MCU platforms, such as the MSP430 (MSP-EXP430F5529 and MSP-EXP430F5438) and TM4C (DK-TM4C123G and DK-TM4C129X). All EM inputs and outputs are at 3.3 V. The pin assignments refer to the front side (CC2564MODN). For example, MODULE\_UART\_RX refers to the receiving UART RX pin on the CC2564MODN device that connects to the UART\_TX pin on the MCU. For the standard pinouts for EM1 and EM2, see [Table 1](#) and [Table 2](#), respectively.

**Table 1. EM1 Standard Pinout**

Pin	EM Adapter Assignment <sup>(1)</sup>	Pin	EM Adaptor Assignments <sup>(1)</sup>
1	GND	2	SWRU4369603
2	MODULE_UART_CTS	4	N/C
5	SLOW_CLK	6	N/C
7	MODULE_UART_RX	8	N/C
9	MODULE_UART_TX	10	N/C
11	N/C	12	N/C
13	N/C	14	N/C
15	N/C	16	N/C
17	N/C	18	N/C
19	GND	20	N/C

<sup>(1)</sup> NC = not connected

**Table 2. EM2 Standard Pinout**

Pin	EM Adapter Assignment <sup>(1)</sup>	Pin	EM Adaptor Assignments <sup>(1)</sup>
1	N/C	2	N/C
2	N/C	4	N/C
5	N/C	6	N/C
7	3.3 V	8	MODULE_AUDIO_DATA_OUT
9	3.3 V	10	MODULE_AUDIO_DATA_IN
11	MODULE_AUDIO_FSINK	12	N/C
13	N/C	14	N/C
15	N/C	16	N/C
17	MODULE_AUDIO_CLK	18	MODULE_UART_RTS
19	nSHUTD	20	N/C

<sup>(1)</sup> NC = not connected

## 5.2 COM Connector Settings

The COM connector interfaces with TI's MPU platforms, such as the AM335x evaluation module (TMDXEVM3358). For the pinout, see [Table 3](#).

**NOTE:** All inputs and outputs for the COM connector are 1.8 V.

Some components must be DNI (do not install) to use the COM connector. For further details, refer to the *Dual-Mode Bluetooth CC2564 Module Evaluation Board User's Guide* ([SWRU390](#)).

**Table 3. COM Connector Pinout**

Pin <sup>(1)</sup>	Relevant COM Connector Pin Assignment
1	SLOW_CLK_EDGE
8	1V8_IN
52	AUD_CLK_1V8
54	AUD_FSYNC_1V8
56	AUD_IN_1V8
58	AUD_OUT_1V8
66	HCI_TX_1V8
68	HCI_RX_1V8
70	HCI_CTS_1V8
72	HCI_RTS_1V8
76	TX_DEBUG_1V8
89	nSHUTDOWN_1V8
3, 9, 19, 37, 47, 63, 77, 83, 87, 95, 97	GND
2, 6, 18, 22, 42, 60, 64, 92	GND

<sup>(1)</sup> Pins not listed are N/C.

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##### 3.1.2 For EVMs annotated as FCC – FEDERAL COMMUNICATIONS COMMISSION Part 15 Compliant:

#### CAUTION

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

#### FCC Interference Statement for Class A EVM devices

*NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.*

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- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

#### 3.2 Canada

##### 3.2.1 For EVMs issued with an Industry Canada Certificate of Conformance to RSS-210 or RSS-247

#### Concerning EVMs Including Radio Transmitters:

This device complies with Industry Canada license-exempt RSSs. Operation is subject to the following two conditions:

(1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

#### Concernant les EVMs avec appareils radio:

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

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<https://www.ti.com/ja-jp/legal/notice-for-evaluation-kits-delivered-in-japan.html>

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2. Use EVMs only after User obtains the license of Test Radio Station as provided in Radio Law of Japan with respect to EVMs, or
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