TI *Bluetooth*® CC2564C Solution

Dual-mode Bluetooth 4.2 controller for legacy and high-throughput applications, including integrated audio capabilities

Texas Instruments

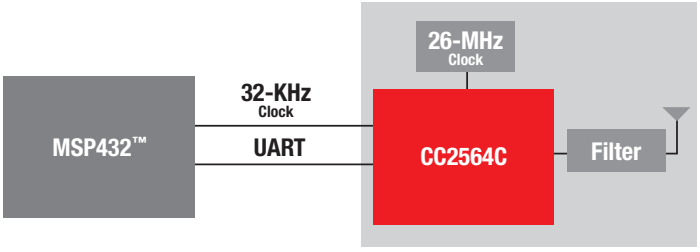
Overview

The TI dual-mode CC2564C solution is a complete *Bluetooth*® BR / EDR / LE HCI or Bluetooth + Bluetooth low energy solution that reduces design effort and enables fast time to market.

A royalty-free software Bluetooth stack, available from TI, is pre-integrated with a variety of platforms including TI's MSP432™ ARM® Cortex®-M4 core MCUs and Linux® Sitara™ MPUs. The stack is also available for MFi solutions and non-TI MCUs. Examples of profiles supported today include: Serial Port Profile (SPP), Human Interface Device (HID), Advanced Audio Distribution Profile (A2DP), Audio/Video Remote Control Profile (AVRCP), Health Device Profile (HDP) and several Bluetooth low energy profiles (vary based on the supported MCU).

CC2564C and the TI software stack provide a fully certified Bluetooth 4.2 solution, including:

- LE Secure connections: Bluetooth 4.2 security algorithm (ECDH) for key generation and new pairing procedure for key exchange
- Link Layer topology: Bluetooth 4.1 scatternet capabilities, managing connection in a dual-mode topology allowing sensor network topology



▲ *CC2564C block diagram*

www.ti.com/product/cc2564c

Key Features

- Single-chip Bluetooth solution integrating Bluetooth Basic Rate (BR)/Enhanced Data Rate (EDR), low energy (LE) features fully compliant with the Bluetooth 4.2 specification up to the HCI layer
- BR / EDR features include assisted mode to reduce host processing and power:
  - HFP1.6 wideband speech (WBS) profile including CSA2 spec commands
  - A2DP profile including SBC encoding / decoding
- LE supports up to 10 simultaneous connections
- LE capabilities of dual-mode link layer topology scatternet: can act concurrently as central and peripheral
- Enhanced audio time synchronization, supporting multi-speakers functionality
- Flexibility for easy stack integration and validation into various microcontrollers, such as MSP432™, ARM Cortex-M4 MCUs and Sitara MPUs
- Highly optimized for low-cost designs:
  - Package footprint: 76 pins, 0.6-mm pitch, 8.10-mm × 8.10-mm mrQFN
- Best-in-class Bluetooth (RF) performance (TX power, RX sensitivity, blocking)
  - Class 1.5 TX power up to +12 dBm
  - Provides longer range, including 2× range over Bluetooth low energy-only solutions
- Advanced power management for extended battery life and ease of design
- Physical interfaces:
  - Standard HCI over H4 UART (4 wire)
  - Standard HCI over H5 UART (2 wire)
  - Fully programmable digital PCM-I²S codec interface
- –40°C to +85°C temperature range

Benefits

- Best-in-class link budget extends application range
- Simplified hardware and software development
- Reduced development time and costs
- Enables simultaneous operations of Bluetooth with Bluetooth low energy

Applications

- Wireless audio solutions
- POS (Point of Sale) and mPOS
- Medical devices
- Set-top boxes (STBs)
- Wearable devices
- Sensor hub, Sensor gateway
- Home and factory automation

Bluetooth CC2564C resources

- Learn more at: **www.ti.com/product/cc2564c**
- E2E™ Forum: **www.ti.com/wiconforum**
- CC256x Wiki: **www.ti.com/cc2564wiki**

Development tools and software

Product Number	Description	Availability
CC256xCQFN-EM 	CC256xC Bluetooth / dual-mode QFN device evaluation module	TI store and authorized distributors

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