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# Qualcomm® CSR534x Dual-Mode Bluetooth SoCs

Family of Bluetooth dual-mode turnkey System-on-Chips (SoCs) for wireless gaming accessories and embedded modules for IoT

The CSR534x series of dual-mode SoCs features a rich Bluetooth v4.1 compliant platform and offers a powerful, versatile and cost-effective solution, making it ideal for a variety of next generation wireless and VR (virtual reality) gaming accessories and embedded modules.

The CSR534x dual-mode differentiated platform is designed to support devices that need to connect to both Bluetooth BR/EDR (basic rate/enhanced data rate) and Bluetooth LE (Bluetooth low energy). These dual-mode SoCs provide enhanced connection topologies to improve smart device support and accessory support. This is combined with a powerful array of embedded system blocks including an 80MHz processor, DSP, large I/O for sensor-rich connection, ROM memory array, direct LED drive, and analog and power management.

The CSR534x highly integrated package with ultra-low power operation allows for significant bill of materials (BoM) savings and optimum design flexibility. The dual-mode CSR534x SoCs meet the needs of a wide range of IoT applications including wireless game pads, VR game pads, toys, industrial and home automation, EPOS, data loggers, barcode readers, metering devices and systems with large interface requirements, such as keyboards.

## Solution Highlights

### Dual-mode Bluetooth for powerful, versatile and cost-effective solutions

The CSR5341 and CSR5342 are ideal for a variety of next generation wireless and VR gaming accessories and controllers, HIDs and embedded modules.



### Ultra-low power operation for optimal battery life

The CSR534x platform is Bluetooth v4.1 qualified and makes use of a highly efficient baseband, so that system level power consumption is minimized, giving optimized performance with minimum development effort.



### Peripheral rich for design flexibility

The platform comes with 22 fully configurable digital I/O and 22 analog I/O, ensuring feature rich designs along with embedded ROM, RAM and the option for memory expansion with a serial Flash memory interface.



### Tools for rapid development

The powerful Software Development Kit (SDK) for CSR534x helps accessory developers of various operating systems to bring products to market quickly. It includes Android and PC support and integrates SPP and SPP over GATT.



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CSRB534x

## CSRB534x IoT Target Applications

- Gaming Accessories
- HVirtual Reality Accessories
- Keyboards/HID Devices
- Dual-mode Bluetooth Modules
- Wireless Toys
- Remote Controls



## Features

- Integrated application processor with internal ROM, a power management subsystem and LED drivers in a SoC IC
- Programmable DSP for exclusive use of customer applications
- 22 programmable digital I/O & 22 analog I/O
- Optional serial flash interface
- On-chip balun (50Ω impedance in TX and RX modes)
- Integrated 1.35V switch-mode regulator
- All internally required regulators integrated on chip
- Integrated Lithium ion battery charger with instant-on (CSRB5342/5348 only) or dry-cell battery technology (CSRB5341)
- Dedicated SDK includes xIDE and market leading Bluetooth stack
- OTA/USB updates for future proofing products
- 7 hardware PWM controllers, 4 on dedicated LED pads
- Keyscan hardware
- Requires minimum external components

## Ordering Information

Product	Part Number
CSRB5341 QFN	CSRB5341A11-IQQU-R
CSRB5342 QFN	CSRB5342A11-IQQU-R
CSRB5342 BGA	CSRB5342A11-IBVE-R
CSRB5348 BGA	CSRB5348A11-IBVE-R

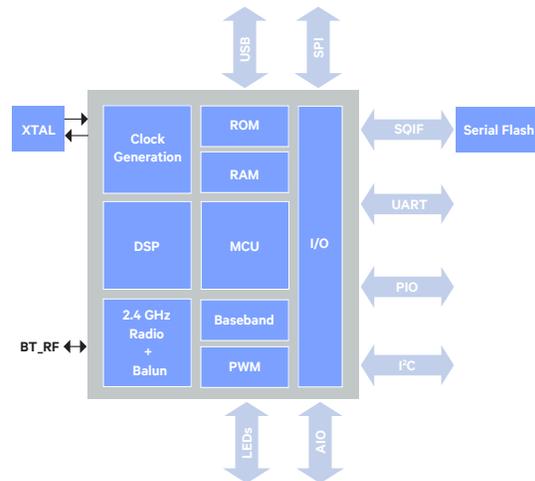
## Related Products

CSRB534x Dev Kits  
Qualcomm® CSR101x family  
CSRmesh™ Dev Kit

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or [developer.qualcomm.com](http://developer.qualcomm.com)

## CSRB534x Block Diagram



## CSRB534x Specifications

<b>Bluetooth Version</b>	Bluetooth v4.1 specification compliant
<b>Package</b>	6 x 6 x 1mm, 0.5mm pitch, 105-ball BGA (CSRB5348/42) 10 x 10 x 0.9mm, 0.4mm pitch, QFN88 (CSRB5341/42)
<b>MCU</b>	80MHz embedded RISC co-processor
<b>DSP</b>	40MHz, 24-bit embedded DSP
<b>Memory</b>	8Mb internal ROM, 56KB RAM External SQIF support up to 64Mb
<b>Bluetooth TX/RX</b>	9.0dBm RF transmit power with level control from on-chip 6-bit DAC over a dynamic range >30 dB -90 dBm receive sensitivity Integrated channel filters No external power amplifier or TX/RX switch required
<b>Interfaces</b>	UART, I²C, SPI, USB 2.0 Up to 22x PIOs 22x AIOs (can be configured as digital I/O as required) SPI debug and programming interface 7x PWM blocks: 4 dedicated to LED[3:0] 3 assignable to PIO 1x digital microphone channel (CSRB5342/48)
<b>Power Consumption</b>	Standby: <0.15 mA, Operating: <1 mA
<b>Operating Voltage</b>	1.8V / 2.8V / 3.2V configurable LDO linear regulator
<b>Operating Temperature</b>	-20°C to +70°C (CSRB5341/42) -40°C to +85°C (CSRB5348)

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