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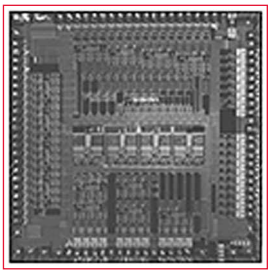
BCM2033
PRODUCT Brief



BCM2033 SINGLE-CHIP BLUETOOTH™ SYSTEM

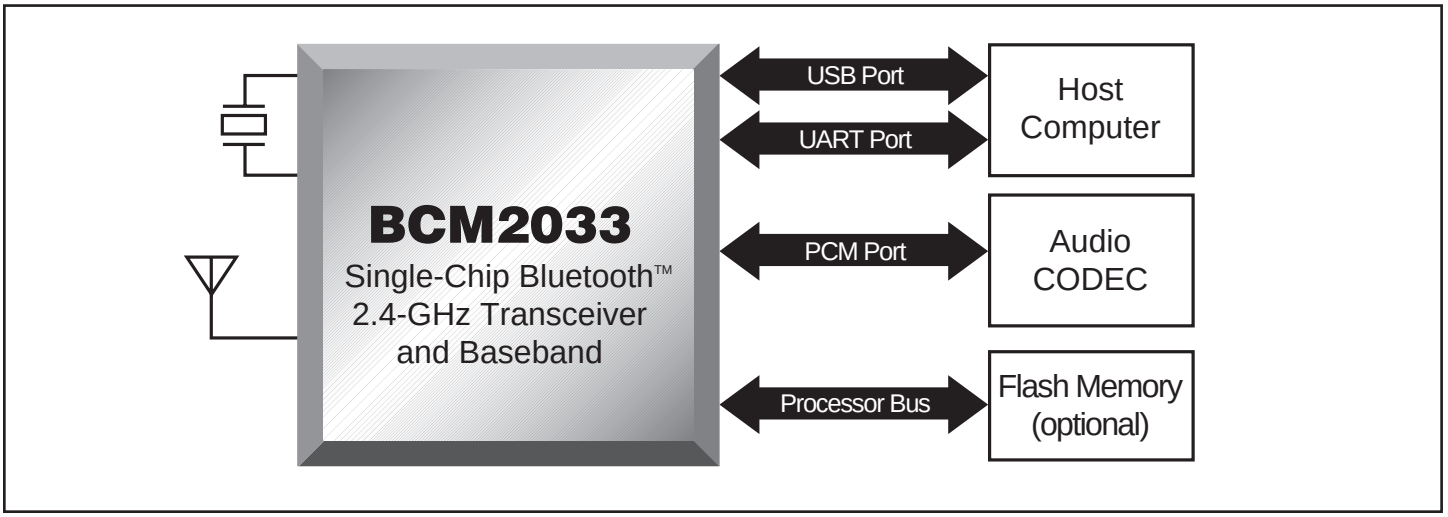
BCM2033 FEATURES

- **Complete Bluetooth™ V1.1 BQB qualified baseband and radio transceiver**
- **Radio transceiver**
  - Typical –80 dBm receiver sensitivity across passband under high interference environments
  - Fractional-N frequency generation
  - On-chip auto-calibration eliminates tuning
  - Programmable output power control meets Class 2 or Class 3 requirements
  - Supports Class 1 operation with external PA
- **Baseband**
  - Standard HCI interface
  - Seven slave multipoint and scatternet operation
  - USB, UART, PCM codec interfaces
  - Optional 8-bit slave interface
  - Full 723 kbps data rate
  - Three simultaneous SCO channels
  - Embedded microcontroller
  - On-chip power management unit
    - Park/hold/sniff
- **On-chip Power on Reset (POR)**
- **Operational in both commercial temperature range (0 C to 70 C) and industrial temperature ranges (-40 C to 105 C)**
- **Available in two packages:**
  - 8mm x 8mm, 64-pin fpBGA package
  - 9mm x 9mm, 100-pin fpBGA package

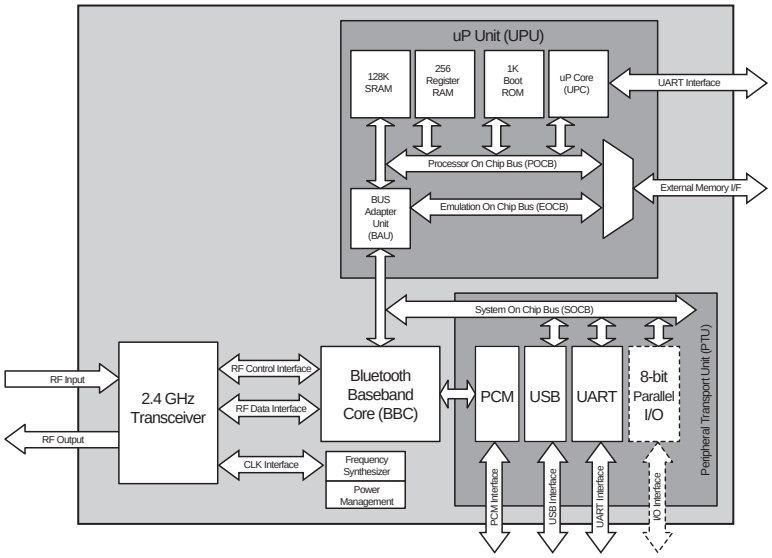
SUMMARY OF BENEFITS

- **Single-chip implementation**
  - Complete 2.4-GHz radio transceiver and baseband
  - Minimal external component count
  - Simplify overall design/development cycle
- **High performance radio transceiver**
  - Fractional-N synthesizer provides flexibility in frequency generation eliminating the need for dedicated reference crystal
  - Robust RF performance
- **Standard digital CMOS process**
  - Most cost-effective, widely available semiconductor process
- **Embedded microcontroller and baseband to offload all processor-intensive tasks from the host computer**
- **Complete LMP and HCI provided in firmware**
- **Low power standby modes to enable very efficient power management**
- **Low overall system cost**
  - On-chip memory enables firmware download eliminating the need for external flash memory
  - Low bill of materials
- **Applications**
  - GSM, CDMA, WCDMA, GPRS, UMTS mobile phones
  - PCs, laptops, PDAs, printers
  - Peripheral devices
  - Automotive applications
  - Embedded devices

BCM2033 Single-Chip Bluetooth™ Application Example



BCM2033 Functional Block Diagram



_ _ _ _ _ Available in 100-pin fpBGA package

The **BCM2033** is a complete Bluetooth™ 1.1 compliant, single-chip Bluetooth solution, integrating the 2.4 GHz fractional-N radio transceiver and baseband controller. It is an ideal solution for a wide range of wireless communication and networking applications, including mobile phones, PCs, laptops, PDAs, and other peripheral devices.

The radio section of the **BCM2033** incorporates the complete receive and transmit paths, including PLL, VCO, LNA, PA, upconverter, downconverter, modulator, demodulator, and channel select filtering.

The baseband section of the **BCM2033** controls all Bluetooth functionality from the physical layer radio to the HCI layer. This includes all bit-level processing, event scheduling, voice/data flow, and on-chip USB/UART/Audio PCM interfaces.

The single-chip Bluetooth solution is a monolithic component implemented in a standard digital CMOS process, and requires minimal external components to provide a low-cost BOM solution. The **BCM2033** is available in a 64-pin fpBGA for applications that do not need the external memory busses.

The **BCM2033** supports third-party Bluetooth upper layer protocol stacks.

The **BCM2033** supports the following interfaces:

- **UART**
  Supports RXD, TXD, RTS and CTS signals. The UART is 16C550-compatible.
- **PCM Audio Codec Serial Interface**
  The audio transcoder interface supports 13–16-bit linear PCM, 8-bit µ-law, 8-bit A-law and CVSD audio and data formats. The serial audio interface supports standard audio CODECs.
- **USB**
  On-chip USB interface conforms to the full-speed (12 Mbps) requirements of USB specification version 1.1 with on-chip USB transceiver.
- **8051 Bus Interface**
  Accesses 64 KB to 256 KB address space for code and data with eight GPIO signals.
- **Optional 8-Bit Input/Output Slave Interface**
  Supports generic and 360-type asynchronous modes.

Ordering Information:

BCM2033KFB 64BGA	
BCM2033MKFB 100BGA	External flash, 8051 bus interface, 8-bit I/O slave interface support

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