CONEXANT

Cordless Spread Spectrum Solutions

For 900 MHz and 2.4 GHz Telephones

The Ultimate Cordless Telephone Solution

Conexant offers complete and flexible antenna-to-microphone system solutions for both 900MHz and 2.4GHz cordless telephones. Our expertise in Digital Spread Spectrum (DSS) technology forms the core of many of today's top-rated telephone systems.

Conexant's proven DSS solutions continue to represent the latest in cordless telephone evolution. Advanced power control, smart channel hopping, and security scrambling algorithms — standard in our DSS offerings — enable the secure, clear conversations that consumers have come to expect from Conexant-based telephones. And now that Conexant provides on-chip support for Caller ID, 2-line, speakerphone and/or answering machine functionality, every phone manufacturer has the opportunity to produce a full-line of digital spread spectrum cordless phones.

Versatile New Options

Conexant's latest DSS device set supports CID applications via frequency shift keying (FSK) detection and CAS tone detection hardware and software. It also enables central office messaging via stutter dial tone (SDT) detection and visual message waiting indication (VMWI). Integrated Telephone Answering Devices (ITAD) are supported via real-time clock and seven-segment drivers. Two-line applications can be supported via a second codec and three independent dual-tone multifrequency (DTMF) generators. The new API firmware architecture provides increased flexibility and simplifies code-development programming.

Conexant's DSS family enables phone designers to lower system costs and find the best match for their architectural needs by offering five unique mixed- signal baseband device options:

- Standard basic device
- Custom mask programmed device
- Custom mask programmed device with CID
- External memory (XROM) device
- External memory (XROM) device with CID

CX06815-25 Features

- Complete system solution
- Caller ID functionality (optional)
- Higher level of integration
- Improved voice quality
- Worldwide applications
- More design flexibility
- 2.4GHz or 900MHz radios available

Part Number CX06815-25
Description Cordless Spread Spectrum Solution

RØDE Exhibit 1071
RØDE Microphones, LLC, et al. v. Zaxcom, Inc.
IPR2025-00232

Baseband Devices

Basic

The Basic baseband device is a 100-pin Monopac™ device that offers the most cost-effective telephone design. It contains all the necessary firmware to provide standard functionality, including dual keypad and speakerphone features. It also offers Conexant's patented "OEM Parameters" option that enables OEMs to customize the product by setting bit fields in an external serial EEPROM device.

Custom

The Custom baseband device is a 100-pin Monopac device that offers 48 KB of ROM and 2 KB of RAM to let OEMs write custom firmware for higher-end models. To help lower costs, the device is available with or without integrated CID support.

External Memory (XROM)

The XROM baseband device is a 128-pin stand-alone device which can access up to 59 KB of external ROM. It aids firmware development by providing access to ROM emulator control signals. OEMs can use this device to achieve a fast time to market for feature-rich phones. OEMs also can store the firmware in an external memory device. Like the custom baseband device, the XROM is available with or without integrated CID support.

Flash Emulation Development Device

The Flash emulation development device is a pin-compatible development tool with the same package dimensions as the Basic or Custom baseband device. It allows programmers to evaluate and debug their code on their own production platform prior to masking a ROM device, reducing the time to market and improving the quality of the finished product.

RF Devices

Spread Spectrum Transceivers

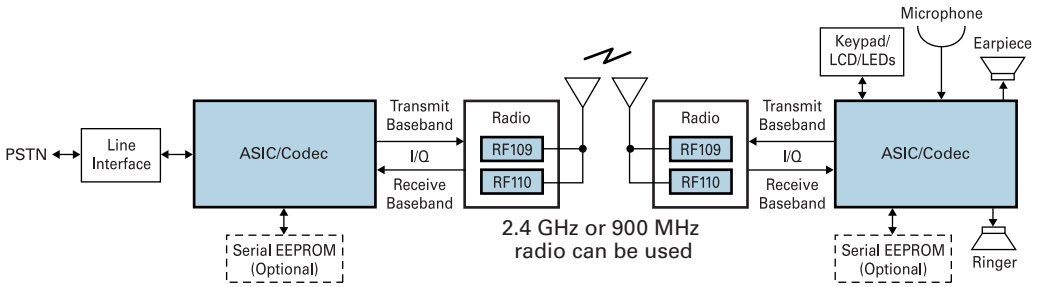
The RF105 (for 900 MHz operation) and RF109 (for 2.4 GHz operation) are fully integrated transceiver ICs that provide complete transmit, receive and frequency synthesis functions. They use a direct-conversion architecture and time division duplexing (TDD) of the transmit and receive signals to minimize circuit complexity.

Spread Spectrum Power Amplifiers

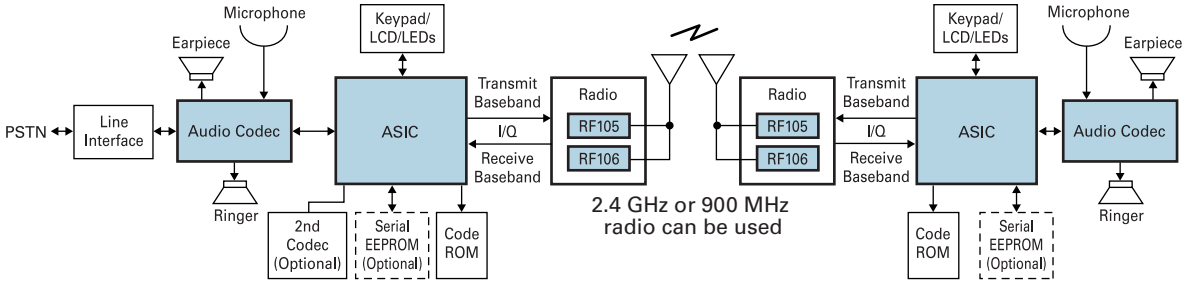
The RF106 (for 900 MHz operation) and RF110 (for 2.4 GHz operation) are class-AB power amplifiers (PA), designed for ISM band applications. They deliver output power proportional to the input signal from the RF105 or RF109 transceiver IC, up to a maximum of 100 mW.

Application Programming Interface (API)

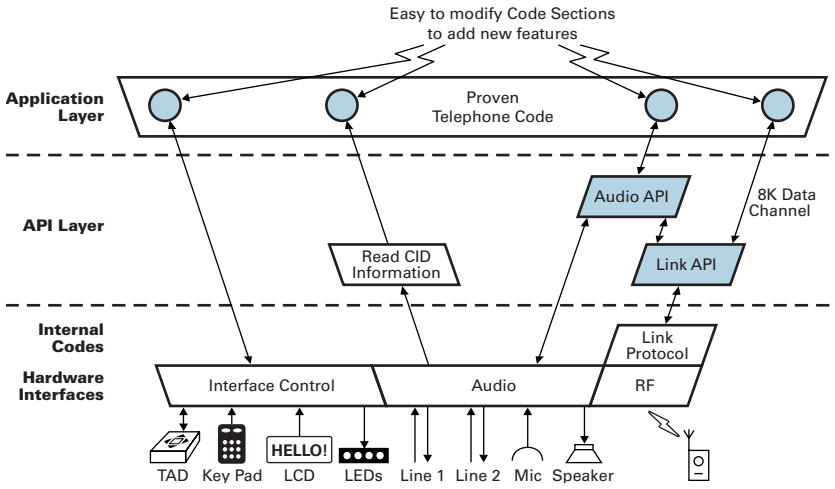
Conexant's DSS offerings provide a convenient software development environment through an Application Programming Interface (API). The API enables developers to focus on application layer software by taking care of lower-level functions such as link establishment and management as well as audio processing. The API accelerates software development activities to support fast time-to-market designs.



Basic and Custom Architecture



XROM Architecture



API Block Diagram

Features

Baseband Device Set

- General
  - Direct sequence Digital Spread Spectrum telephone system
  - Integrated CID, TAD, and message services support
  - Single system solution for base station and handset
  - Telephone firmware provided
  - 3V, low-power operation
  - >14-day standby
  - >4-hour talk time
  - OEM Parameters for easy customization
- System Controller
  - MC19 CPU (65C02-based)
  - Single 19.2 MHz system clock with low-power, on-chip oscillator
  - On-chip 48K ROM, 2K RAM
  - Watchdog/sleep/wake-up timer
  - External parallel bus (128-pin XROM only)
  - Emulation port through parallel bus (128-pin XROM only)
- Controller Peripheral Functions
  - 900 MHz or 2.4 GHz RF transceiver control
  - Multiplexed 6x8 keypad/GPIO switches/LCD data interface
  - Battery-level detector with thresholds
  - Serial port for I2C™ or 4-wire Microwire™ serial EEPROM
  - 4- or 8-bit parallel LCD data interface port
  - 6 masked LED control ports with programmable on/off durations
  - Lighted keypad control
  - Selectable flash duration
  - Selectable DTMF intervals
  - Real-time clock
  - Seven-segment display driver
  - Support for two audio codecs
- DSS Baseband Modem
  - I/Q A/D modem input
  - DBPSK DSS modulator/demodulator
  - 12-chips/bit, 11 dB processing gain
  - Additional security with >224 ID and control channel scrambling codes
  - Automatic frequency control (AFC)
  - Automatic gain control (AGC)
  - 40 independent RF channels for 2.4 GHz/20 for 900 MHz (902–928 or 2400–2483.5 MHz band)
- Audio Co-Processor
  - 19.2 MHz 16-bit processor
  - ADPCM Vocoder (ITU G.726 compliant)
  - Audio path and gain controls
  - Stutter dial tone detection
  - FSK detection
  - CAS detection
- Audio Codec
  - Full-ITU G.714 compliant standard voice frequency linear encoder/decoder
  - Delta-Sigma ADC/DAC with dynamic range >70 dB
  - 8 KHz sampling rate
  - Line input and output (600-ohm load) for PSTN interfaces
- DSS Firmware
  - Simple API code structure for link control and audio path/gain setting
  - Embedded RF transceiver control software
  - Audio and PSTN interfaces
  - User-customizable phone control software
  - Test mode
  - Programmable audio gain table
  - Driver for LCD with CID message display
  - Two-line support
- Packages
  - Single-device ASIC/codec: 100-pin PQFP
  - XROM ASIC: 128-pin TQFP
  - Audio Codec: 32-pin TQFP

Direct-Conversion Transceiver

- General
  - 900 MHz or 2.4 GHz solutions available
  - Direct-conversion differential BPSK (DBPSK) transmit modulator
  - High-, medium- and low-power transmitter output levels
  - Direct-conversion receiver with I/Q baseband outputs
  - Receiver AGC
  - Large dynamic range: 90 dB
  - Single-supply voltage: 3.0V to 5.0V
- RF105/RF109 Transceivers
  - Single-chip RF transceiver
  - Low power dissipation
  - Fast settling from standby mode
  - 64 programmable channels with 600 KHz or 1.8 KHz channel spacing
  - 3-battery-cell operation
- RF106/RF110 Power Amplifiers
  - RF power amplifier with 100 mW peak envelope output power
  - High efficiency from class-AB action
- Packages
  - RF105/RF109: 48-pin ETQFP package
  - RF106/RF110: 20-pin TSSOP package

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www.conexant.com
General Information:
U.S. and Canada: (800) 854-8099
International: (949) 483-6996
Headquarters – Newport Beach
4311 Jamboree Rd, P.O. Box C
Newport Beach, CA 92660-3095

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