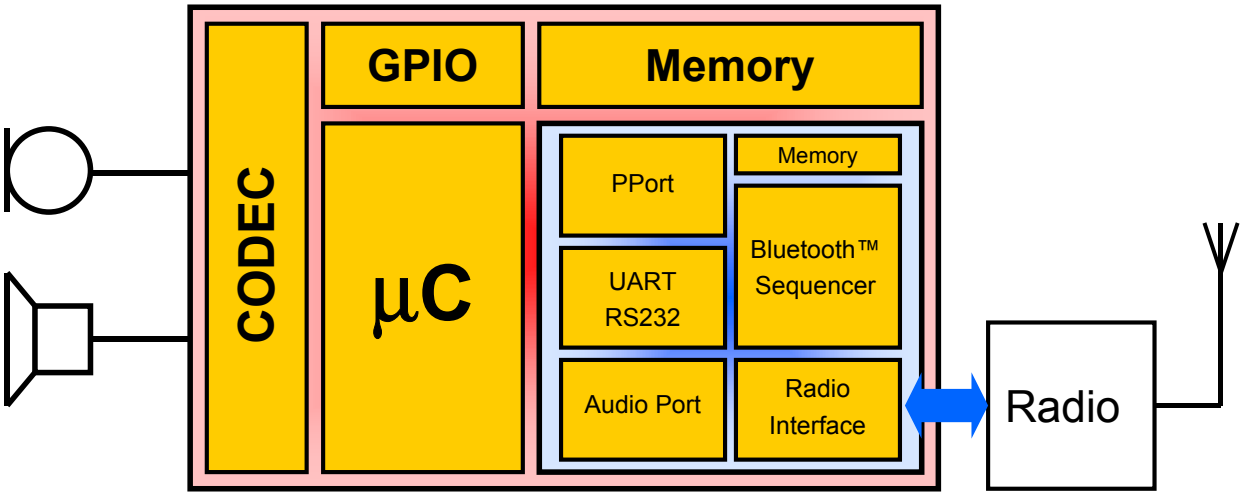
XEMICS

Preliminary Product Brief
XE1431



XE1431

Ultra low power Bluetooth™ headset solution

Build a complete headset with the XE1431

General Description

The XE1400 series is a family of highly optimized Bluetooth™ integrated circuits. The XE1400 series offers generic Bluetooth™ baseband solutions to enable your battery operated applications with the Bluetooth™ wireless communication standard in the worldwide available 2.4 GHz ISM band. The XE1400 series is optimized for ultra low power consumption as well as low cost.

The XE1430 series additionally includes an on chip voice CODEC as well as an application controller, both are optimized for ultra low power consumption as well as low cost.

The XE1431 offers a high level of integration. With only a few external components, a complete Bluetooth™ wireless headset solution can be built. By combining the XEMICS "Headset Bluetooth™ Baseband Controller" XE1431 with a 3rd party 2.4GHz radio device (e.g. Conexant CX72303) a real ultra low power Bluetooth™ solution can be built.

Applications

- Cell phone and other wireless headsets.
- General wireless human interface applications.

Product Features

- Single chip Bluetooth™ headset baseband solution including voice CODEC.
- Fully integrated lower layer Bluetooth™ protocol, compliant to revision 1.1 based on qualified NewLogic™ IP.
- On-chip 8-bit ultra low power host controller with on chip RAM for application and upper layer Bluetooth™ tasks.
- UART, SPI and parallel port for interfacing.
- Direct connection to the microphone and speaker.
- Supports one simultaneously SCO (HV, DV packages) and up to three simultaneously ACL (DM, DH, AUX packages) channels.
- Supports various Bluetooth™ radio interfaces, e.g. Conexant CX72303.
- 13 MHz or 16 MHz clock sources supported.
- Small form factor – BGA.
- Operating voltage 1.8V.
- Ultra low power consumption.

Headset controller IC

The Bluetooth™ Headset Controller IC XE1431 includes the XEMICS Bluetooth™ baseband Controller, the XEMICS CODEC as well as an 8-bit micro-controller for upper layer Bluetooth™ and application software. The on chip application controller is based on XEMICS' proprietary micro-controller, the CoolRISC. The embedded controller operates totally independent from the Bluetooth™ sequencer.

The on chip voice CODEC enables a complete headset solution with only a few external components.

Software

The XE1431 incorporates the complete lower layer protocol software. A state of the art upper layer protocol Development Tool will be provided by our partners as well as configuration and control software for our XE3000 CODEC.

Memory

No external memory is required to run the lower layer Bluetooth™ protocol. The application controller includes RAM, however additional, external memory to run the upper layer protocol and application tasks must be considered.

Radio

The XE1431 supports several 3rd party radio devices. To benefit most from the low power features of the baseband chip, XEMICS recommends the Conexant CX72303 Bluetooth™ transceiver.

CODEC

The on chip CODEC device provides a lin. PCM signal. The CVSD (Continuous Variable Slope Delta) encoder/decoder is included into the Bluetooth™ sequencer and does not involve the application controller.

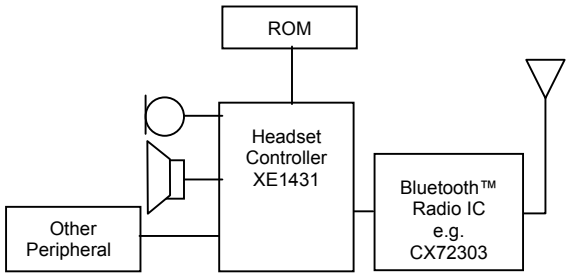
Fast time to market

Because the XE1430 series is exclusively targeted at Bluetooth™ wireless human interface applications with any kind of voice communication, such products can rapidly be brought to market.

The on chip CODEC as well as the fully embedded Bluetooth™ baseband controller freezes up computation power for the embedded application controller and speeds up the development. There is no multitasking between lower layer Bluetooth™ and application tasks.

Reference Design

XEMICS will offer a comprehensive reference design demonstrating the XE1430 technology but also targeted for mass production. The OEM will then be able to focus on design integration rather than complex product development.



Complete Bluetooth™ headset solution

The XE1431 Evaluation Kit demonstrates a fully functional Bluetooth™ wireless headset.

Forthcoming XE1430 devices will also include on-chip ROM for upper layer and application software.

Circuits availability

The XE1430 series of products is in development phase at XEMICS with engineering samples scheduled to become available in Q3/2002.

The complete reference design as described above will be available during the same time frame. The XE1431 circuit specifications outlined herein are of preliminary nature and subject to change without prior notice.